AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

ORANGE JUDD COMPANY, Publishers and Proprietors, 245 Broadway.

ESTABLISHED IN 1842.
German Edition issued at the same rates as in English.

TERMS: $1.50 per Annum in Advance, post-free; Four Copies $5.—Single Number, 15 Cents.

VOLUME XXXIX.—No. 12. NEW YORK, DECEMBER, 1880. NEW SERIES—No. 407.

IN THE WOODS IN WINTER. — *Drawn and Engraved for the American Agriculturist.*

In many parts of our country the woods are scenes of great activities during the winter months. It is at this season that most of the logs for lumber are cut in the great pine forests of Maine, Michigan, and some other States, and afterwards drawn to the frozen streams, where, when the ice breaks up, they go down on the "drive," and are finally made into rafts to be floated to the mills. The life in a lumber camp is a peculiar one, and to the stranger is full of novelty. The ring of the axe, the shout of the teamster, the crash of falling trees, and the roar of the logs as they are shot down the river banks, all give, to the person unaccustomed to the clearing of a heavy forest, a strange sense of destruction, and for the moment he looks upon man as the destroyer. Nothing changes the face of the landscape so much as the disappearance of a forest, and when this is accomplished in a few short winter days, it seems almost as if some giant power had been at work: as if a whirlwind had passed, and the great trees had been swept away.

Even in the older portions of the country, where, perhaps, the sound of the pioneer's axe died away a hundred or it may be two hundred years ago, the "wood lot" is a busy place, and the seat of much of the winter's hardest work. There is the firewood to cut and draw—enough to last the family through a whole year—and a few logs of pine, or oak, or whitewood, to be drawn to the mill to furnish lumber for some new farm building, or to use in adding to or repairing an old one. There is no time like winter for doing this kind of work, and there is no labor on the farm that pays better to do in season than this. To get the year's firewood in the winter—saw and split it, and have it all well seasoned and snugly piled in a handy shed, by the time the settled weather of spring comes, is of the most importance. It is a great saving of time in the busy days of spring and summer, when there are so many things that must be done then or not at all. There is a great economy of fuel in using dry wood, and it has an important influence on the temper and happiness of the household. Sizzling fire brands and soggy wood have no tendency to develop in either man or woman saintly characteristics. Dry wood, then, is not only a means of grace, but much cheaper than that which is cut fresh from the tree when needed.

The accompanying engraving gives a view of a wood-cutting scene in winter. The hunter, who appears to have been fairly successful, is just coming up, and so quietly in the soft, freshly fallen snow, that the choppers do not hear him or his speechless, well-trained dog. The four oxen having brought their heavy load to the top of the knoll, have paused for a breath before they are urged on, either to the wood-yard or to the neighboring saw-mill.

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ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

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AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1880.

Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

The days grow shorter, and reach their shortest duration, while the evenings are longer and longer. The time is favorable for looking backward in thought. Fore-thoughts are good in their time, but after thoughts, though often less honored, are worth a great deal more for shaping the future.

Account of Stock.—The last few days of this month and often the first week of the next, if indeed a longer time is not needed, are spent by all careful store-keepers and shop-keepers, and business men, in "taking account of stock." The goods are overhauled and examined, and an accurate list made out, of all articles, oftentimes with the cost and the selling price, or the cost and the present value, compared in adjoining columns. Thus the balance for the year can be accurately made out. Farmers ought to do something of this kind. It is not difficult, and if they do not plan to do it now, Christmas will pass, and the New Year will begin before they do it, and then it will be put over until another year. It is very easy to catalogue horses, cattle, sheep, and swine, and other live stock, and to set a fair price upon them. It is not difficult to estimate the amount of fodder; and the bushels of grain and roots are already, in most cases, accurately known. But a farmer's wealth lies in good part in labor expended, which will bear fruit another year, and in the far off future, and no estimate of the proprietor's business standing will be a just one which does not take into account such items as these: "20 acres sowed to wheat and grass, dressed with 18 loads of manure to the acre—say at a cost for labor, seed, and manure, of $700," "100 rods strip fence at $125"; the former item being placed in the "account of stock"—the latter in the "expense account," the same as "interest on the investment," "insurance," "repairs," "painting," etc.

"What's the Use?"—Will it make fatter beeves? Will it make better wheat and corn? will it make more milk and butter? Perhaps not; and yet it probably will help to do all these. The farmer will see, after the second year: 1st, whether or not he is advancing; 2d, where he may make important savings; 3d, what branches of his business pay best, which cost the least labor, and make the best returns. The nearer a farm can be conducted upon sound business principles the better for the farmer.

Live Stock.—As the season advances the live stock require increased attention; not only are they more directly dependent upon our care, but they are subject to discomforts from exposure, which seriously interfere with the profit of keeping them. Of all our domestic animals the pig is the most sensitive to exposure to rough weather, poultry next, in this order: fowls, ducks, geese, and turkeys, the last often doing better when exposed than if sheltered. Next to fowls, cows, then, working oxen and young cattle; next horses, which are used, unused horses, and sheep. Of these last the long-wool breeds are most sensitive to cold storms and snow, but close-fleeced breeds will stand almost any amount of cold if they have enough to eat, sheds to go under, and shelter from driving storms of rain and snow.

Horses, if well fed, usually feel bright and lively in winter, and young horses are, for this very reason, more easily trained than when the weather and running at pasture makes them dull. Whenever horses are used so as to warm them up at all, blanket them as soon as they stand still, if only for two or three minutes, those two or three minutes are sometimes enough to give a chill, which may end in pneumonia, or other serious troubles. Grooming saves feed, and also promotes health in horses, and should never be neglected. It will probably pay even to groom boarding horses, and it will certainly pay the owners to stipulate that their horses should be groomed daily. Blankets, except mere "dusters," are worse than useless in stables; they make the horse tender, and more likely to take cold when brought in hot. Litter very freely if you have the material; straw, leaves, swamp hay, etc.

Gypsum in Stables.—This article is admirable as a fertilizer upon clover, and an efficient absorbent of ammonia, and purifier of the air of stables. It is well to sprinkle it over the floor of both horse and cow stalls, as soon as they are cleaned out in the morning, and over the bedding at evening. When thus used, its effects are just as good, and probably better than when applied alone upon the land.

Cattle.—Store and dry cattle will go through the winter under dry sheds, and fed upon corn-stalks and swamp hay, but they will do much better if fed a little grain and roots, and well sheltered. It is not necessary to give them the care needed by

Milch Cows.—These ought to be well fed, and cleaned by a card and brush, *daily*, if possible, otherwise twice a week. They should be milked up to within four weeks of calving. It is a great temptation to dry off a cow so as to save the labor of milking, and not alone will hired men do this, but the farmers themselves, generally, do it, and think that they save a good deal in feed and labor, while in reality, with young cows, they impart a habit of going dry early, which will last them as long as they live. The better milch cows are fed, the better return they give, but feed judiciously.

Cotton Seed Oil-Cake Meal is being largely used and is worthy of being fed more extensively. Cotton seed is used in the Southern States with good results. The meal should be fed mixed with bran and best on cut hay. A little corn meal added gives flavor and color to the butter. Rowen or well cured lawn clippings are the best feed for giving color to cream and butter in winter.

Testing Cows.—Upon not a few of the best dairy farms—and yet, perhaps, it would be truthful to say upon a few such farms, the milk given by each cow is weighed at each milking, and once in a while, as her turn comes around, the amount of butter she will make is ascertained. This, if continued through the year, gives results which will enable the farmer to pick out his best cows. Though the system seems accurate, it is liable to one serious fallacy; a cow which is apparently in perfect health will give in one year a much larger quantity of milk and butter than she will in another, for reasons that are as yet not well understood.

Calves which are to be brought up away from the cow should be removed from the dams as soon as dropped. They will never—hardly ever—attempt to suck even one another's ears, and if fed carefully will fatten equally well with those on the cows.

Sheep are peculiarly sensitive to good treatment. A good shepherd is always gentle among his sheep. Ewes which are to lamb early ought to be by themselves and have better care as their time approaches. Feed a few more turnips and give them a little more liberal sprinkling of corn meal and bran, or oil cake.

Store Sheep and rams should be by themselves, and let fattening sheep have regular feeding and be kept quiet, giving them a very small yard and an airy but dark shed, supplied with feeding racks and troughs: never feed them in the open yard.

Pigs.—Nearly double the feed will be required to keep pigs from going back, after really cold weather comes on—say, when the ground freezes. It is then best to kill at once. Every farmer ought to be able to kill and cut up his own pigs. Butchers are often very rough and brutal. This is not necessary. Many a farmer who kills his own pigs does so because he wants the job kindly and humanely done. He actually thrusts the knife as if he loved the victim. Feed soaked corn, that is, corn which is covered with as much boiling water as it will take up in 24 hours. This is better for either fattening or store pigs than coarse meal, unless the latter be thoroughly cooked.

Poultry.—Hens will lay up to Christmas, if they have warm quarters. A manure shed, where mixed manure throws off considerable warmth, and which is closed in, but well ventilated, is an excellent place for fowls. They are kept warm and comfortable, their droppings are all saved, going to

enrich the manure, and they keep on laying, often all winter. At noon feed, in open weather, soft food—that is, boiled potatoes mixed with bran and corn-meal, or something of the kind; at night give a good feed of whole grain, throwing down enough to toll them off the roosts for an early breakfast, unless thereby you will be feeding an army of rats all night. In snowy and frozen weather, feed three times a day, and give only what they will run after at each meal.

Ducks.—Train them to spend the nights on a compost or manure heap, under cover. They will lay earlier, and eat less, for they will be warm.

Geese need regular feeding. They do well on potato and apple parings, a little corn, and a chance to pick up scattered clover leaves and heads which fall from the fodder racks.

Game Birds.—It is well worth while to look out for game birds during severe weather, when the ground is covered with snow and ice. At such times many quails perish, and if buckwheat and oats or other small grains be thrown under the shelter of evergreens, or along the fence rows where these birds will find it; they will winter much better for this care, and will not be likely to scatter very far in the breeding season.

Swamp Muck.—If the season remains open, no better work can be done than getting out muck from the swamp to be exposed to the freezing and thawing of the winter. It is always valuable as an absorbent, and often contains much ammonia.

Draining and Ditching may be pushed forward so long as the season is favorable; in fact, there is no better time for such work.

The Wood Lot.—Work may be done here during the whole month. It is the best season to cut timber for building purposes and for fencing stuff. For fire-wood, the season is not of so much importance, and yet that which is cut early in the winter is better than that cut later.

The Ice Crop in every section of the country is becoming more and more important. The season may be as unfavorable for ice as the last, but that is hardly possible. Nevertheless, a prudent man will be prepared to lay in his ice as soon as it shall have attained half the usual thickness, or even less. The probabilities are that an enormous quantity will be secured this season. It is being applied to new uses all the time, and its consumption in both town and country is greatly on the increase.

Notes on Orchard and Garden Work.

THE FARMER, because these Notes are under a separate heading from those which relate to the proper work of the farm, may think that they are not intended for him. If this catches the eye of any one who has this impression, we would have a word with him. Those who raise fruits and vegetables as a business, do not need us to tell them what to do. It is for the farmer and others, inexperienced in such matters, that we give these monthly hints. The fact that, take the farm houses throughout the country, their tables, as a whole, show a great lack of variety, cannot be denied. In many, fruits are regarded as a luxury, and choice vegetables are a rarity. We have long endeavored to show that there is scarcely anything in the way of fruits and vegetables that can not be had by any farmer in the land, in the greatest profusion, if but a little thought be given to it. We do not look upon it as merely gratifying the palate with a variety, but as a matter of health and comfort which concerns the whole household. We therefore ask the farmer when he looks over the paper and comes to "Notes on Orchard and Garden Work," not to suppose that these are intended for what are called "professional" gardeners and orchardists. They are made for the farmer and intended to show him that there is no art or mystery in producing the choicest gifts of the orchard and garden that he can not learn and practise.

Orchard and Nursery.

Apples.—This has been a great apple year, and immense quantities have been shipped to various parts of Europe. This trade is now so well established that in planting, the American orchardist should have the foreign demand in view. Apples for shipping should be those that bear transportation, and also those that are in favor abroad, such as the Newtown Pippin, Spitzenberg, Baldwin, etc.

Fruit in the Cellar.—When the fruit cellar is separate from the house it should be kept just above the freezing point; such cellars do not require ventilation. Cellars under living-rooms must be ventilated, otherwise the gases given off while the fruit is ripening—and too frequently decaying—will endanger the health of the inmates. There is a demand for special care in this matter, at the present time, because the fruit has been so abundant that there is an unusually large amount stored in the cellars. If the house is so constructed that an opening can be made from the cellar into a chimney, ventilation may be very complete; an opening which can be closed at pleasure should be made to admit air from without when desirable.

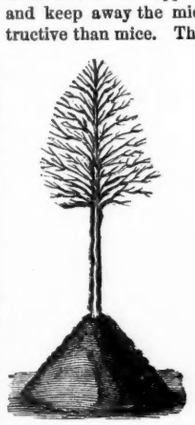
Cions should be cut early and before they have been exposed to hard freezing; select the most vigorous and well ripened shoots; tie in bundles, label and pack in fresh sawdust, damp, as it comes from the mill; this leaves no grit to dull the knives when grafting, as is the case when sand is used. In the absence of sawdust pack in sand.

Pruning, unless very large branches are to be removed, may be done at any time after the leaves fall, when the weather is pleasant. This is a good time to bring young trees into proper form.

Tent Caterpillars.—Much time may be saved and vexation avoided by examining the orchard for the eggs of the Tent Caterpillar. This may be done on mild dull days during the winter. The eggs are glued closely together in a band around the smaller twigs as shown, near their ends, in the engraving. The burning of one of these clusters means the destruction of three or four hundred of the "worms" that otherwise would come from it in the spring about the time that the leaves start.

Seeds of fruit and ornamental trees are best kept in sandy soil or slightly damp sand, and so cool that they will not germinate.

Animals.—Winter is a trying time for young trees; the storms of wind and snow bend and break them. But perhaps the most serious injury is done by mice and rabbits. Clear away from around the trees all rubbish that may harbor mice. With young trees place a mound of earth (as in fig. 1) a foot in hight around each, and tramp it down. This serves to support the tree against winds and keep away the mice. Rabbits are more destructive than mice. They have a great distaste for



1.—TREE EARTHED UP.

2.—A LATH PROTECTOR.

flesh and blood, and by rubbing the trunks of the trees with cheap meat, or smearing them with blood by means of a swab, the trees may be effectively protected. A good protector is made of lath fastened together with wire, and the whole bound around the base of the tree, as in figure 2.

Manures.—By many the orchard is expected to yield two crops—one from the trees, and another more directly from the soil, as it may seem. It is, useless to expect the best fruit from trees that are robbed of their nutriment by quick-growing crops. Ordinarily, when the trees come into bearing, they should have the land to themselves. If circumstances make it necessary to grow some crop between the trees, both the crop and the trees should be manured. Well rotted manure is best, and when spread let it cover the whole ground and not be heaped about the trunks of the trees where there are no small roots to make use of it. Winter is an excellent time to spread the manure, as it can be drawn upon sleds which more readily pass under and among low trees than a wagon. A dressing of lime will often be of great benefit to an orchard.

The Fruit Garden.

There is but little to be done in the fruit garden, except to finish up fall work and go into winter quarters. Mild days will give an opportunity to finish pruning currants, grape vines, etc., at the same time saving any of the wood that may be needed for propagation.

Winter Protection.—Many plants are killed by too much protection. For example, strawberries are hardy, and the covering of straw, marsh hay, etc., that is recommended for them is not so much to shield from cold as to prevent frequent freezing and thawing of the soil. The covering should be mainly around and not upon the plants.

Shrubs that are not quite hardy do not require bundling up, as was thought necessary not many years ago, when more plants were smothered than benefited by the covering. A little brush, or better, some evergreen boughs placed close to the shrub will ward off the severe winds, modify sudden changes of temperature, and be a sufficient protection. Tender raspberries must be bent down, and covered with earth before freezing prevents it.

Manure.—Coarse manure may be applied around currants, gooseberries, blackberries, etc.; in the spring rake off the straw and fork in the rest.

Kitchen and Market Garden.

If the autumn has been prolonged, and the weather is still open, much work mentioned in the October and November Notes may be done now.

Celery, while in trenches for the winter, should not be allowed to freeze hard—a moderate freezing does no harm. The hay or straw for covering should be at hand when needed. As soon as the winter fairly sets in, the covering, which until then was slight, should be made about one foot in thickness. Celery in boxes, in the cellar, is more apt to suffer from heat than cold. The boxes, about nine inches wide, are made of old stuff, and as long as convenient; set the celery in them as in trenches. The boxes should be placed their own width apart, thus avoiding a solid mass of celery which would heat and decay. The cellar should be as near the freezing point as possible.

Cold Frames will now need daily attention. The plants kept in them are not to grow, and should they start they would be ruined. The sashes are to be kept continuously closed only during the coldest winter weather; at all other times, especially during the day, they must be lifted. When the temperature of the atmosphere is above freezing, the sashes should be off altogether.

Cellars where roots are stored need to be kept cool, otherwise the roots will shrivel or start into growth, and be injured. Roots for table use, if kept in earth or sand, are fresher and better than others.

Parsnips left in the ground are improved in sweetness by freezing. They can be dug during a thaw.

Salsify is also hardy, and may be left in the ground with the same treatment as Parsnips.

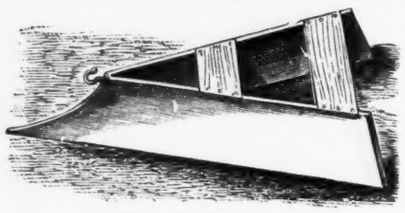
Horseradish may be dug before the ground freezes, and stored in a box of earth in the cellar. If a heavy covering of straw is put over the bed, the roots may be dug at any time during the winter.

Seeds.—The garden seeds should be assorted, labelled, and stored in a dry cool place, out of the way of mice. Seeds, like the parsnip, that are not good after the first year, should always be fresh. If there is doubt concerning any seeds, throw them away; use only good seed, and of the best

varieties; these precautions are among the prime essentials of good success in the vegetable garden.

Flower Garden and Lawn.

Only the most thoroughly composted manure should be used upon the lawn, and even then the seeds of some weeds will probably not be killed. In respect to weed seeds, there is no risk to be run in the use of artificial manure upon the lawns. Heavy falls of snow may do much damage to trees, especially the evergreens. The snow should be shaken from the limbs before it gets hard and icy. When deep snows drag down the lower branches, the shovel should be used in removing the load



A CHEAP SNOW PLOW.

that might break them. A snow plow should be at hand. Where there is a long path, a horse snow plow is a great saving of labor. The one shown in the accompanying engraving is easily made. Always follow the established paths with the plow, and if there are places where strangers or thoughtless persons will be apt to "cut across," put up guards of wire. When the ground is covered with snow the birds should not be forgotten; provide both food and water for them in suitable places.

Greenhouse and Window Plants.

Chrysanthemums that have flowered should be cut down and the pots placed in the pit or cellar, and left for a time to rest without water.

Bulbs in Pots should now be well rooted, and brought out of the cellar for early blooming. It is better to bring a few forward at a time, at frequent intervals, in order to have a succession of flowers.

Hanging Plants.—To water them perfectly, plunge the baskets into a tub of water, and let the earth soak; after dripping has entirely ceased, they may be returned to their places.

The Temperature of a greenhouse is much easier regulated than that of a living-room. The thermometer should stand at about 70° in the day time, and may descend ten or fifteen degrees during the night. This temperature is best for most persons.

Dust.—Plants ought to be covered with a cloth or newspapers when sweeping is being done. Smooth and thick-leaved plants, as Ivies, can be sponged, which will add to their health and beauty.

Valuable New Books.

Some new volumes advertised elsewhere are specially intended for our great family of readers.

FARM HOMES IN-DOORS AND OUT. By E. H. Leland, contains a vast amount of useful information communicated in an attractive narrative style. The table of contents, printed on third cover page, conveys an idea of the scope of the work. A copy should be in every family. The book is elegantly gotten out, on tinted paper, in black and gold binding, and will make a most suitable holiday present.

BAILEY'S BOOK OF ENSILAGE, published last year, has attracted considerable attention. The price ($2.00) has been so high as to prevent its general circulation. The new volume is supplied at the popular price of $1.00. It contains all the ensilage matter of the first $2.00 edition. Those wishing to familiarize themselves with this method of preserving green fodder will find the desired information in this volume.

WHEAT CULTURE. By D. S. Curtiss, conveys hints and suggestions to farmers as to how they can double the yield and increase the profits.

BARN-PLANS AND OUT-BUILDINGS is a volume for which there has been much demand. The book proposes to give the desired information concerning the economic erection and use of all structures which the farmer may require. It is furnished at a popular price.

A Special Favor Asked.

1.—There are about **42,000** different Post Offices in this country, to a large portion of which this journal is mailed regularly, to subscribers. Besides these, it goes to many other points in almost all parts of the habitable world.

2.—A *separate* book account, with alphabetical index, must be kept with each and *every* Post Office, whether it receives one, five, or five hundred copies of the paper, and the names of subscribers received in different letters, must all be *brought together* in the proper place in these mail books.

3.—As this is a great work, requiring the care of experienced, careful clerks, it is very desirable to give them every facility, and all the time possible. It can be best done if begun the moment this number is mailed, and not crowded into a few days and nights, about new year's day.

The Special Favor Asked is, *that each reader will, on seeing this paragraph,* **at once** *send in his or her own renewal for volume* 40 (1881), *and also the subscriptions of any friends who may be disposed to join our family of readers for the coming year. It will take no more time to do this now, than later on, and will greatly help us.* (☞ *A Subscription Blank is furnished on page* 532.)

Extra Copies for 10 Days.—We shall print an extra edition of this number, and any new subscribers for 1881, whose subscriptions are received *prior to December 10th* will have this December number free. This applies to *all* new subscribers, premium clubs included.

For the Whole Country.—As to the real work and scope of the AMERICAN AGRICULTURIST, it "knows no North, no South, no East, no West," as separate fields of investigation. While the principles of cultivation, of plant growth, of home comforts, are the same everywhere, the world over, the Editors will hereafter, more than ever before, travel through various parts of the whole country to study the wants and methods resulting from the local differences in soils, crops, climate, implements, customs, etc. None of them reside in the city, but all have their country homes, and speak and write from actual experience and observation.

WELL WORTH LOOKING AFTER.—The **331** numbered Articles, and the hundreds of *good* Books offered to our readers in the Premium List were selected with great care, and there are some things at least that are just what every Reader will desire. The terms on which they are offered make it easy to secure them by ANY ONE, at little or no cost. The quality of every article is vouched for, and one runs no risk of deception. We would like to have every reader look through the List again at this time. Read in the introduction, page 377, "Premium Giving Explained." If the copy sent in September, amid the political excitement, is lost or mislaid, another copy will be promptly sent on postal-card application.

Giving Holiday Presents is Pleasant.—A notice to a distant son, to a relative, a workman, a friend or neighbor, that you have ordered the *American Agriculturist* for him for 1881, will be to very many a most acceptable gift, and one that will be a reminder of you every time it comes all through the year.—Then there is a fine assortment and great variety of excellent things described in our Premium Sheet, most suitable for Holiday Presents. If one can not obtain them free, by means of premium clubs, they will be supplied to any of our friends at the prices named, if they will send in in time.

Be in Time, If for Christmas or New-Year's.—Our Friends intending to receive, either by subscription clubs, or by purchase, any of our Premium Articles for themselves, or to use as Holiday Presents, should send in ample time for the Publishers to secure them. Some articles, in unusual demand, may chance to run short in supply early in the month. Accidents, or over-crowding, or other delays in transportation, may happen to bring some desired articles along "a day after the fair," if not started early.

Did You Notice the easy method of getting, at almost *no cost*, an excellent supply of *good* Books for yourself, or for a neighborhood circulating library, etc., as offered in our Premium List? This offer embraces not only books on Agriculture, Horticulture, Gardening, Architecture, Animals, Plants, etc., but many of the best Standard Books in all departments of Literature. Any person or company of persons, by collecting and sending in ten or more subscriptions for 1881, at the regular rate of $1.50 each, can, for *each* of the ten or more names, select *one dollar's worth* of books (any ones desired) from the hundreds of volumes named in the Premium List. Please refer to that List, or send for a new copy if yours is mislaid.

☞ **67 per Cent!**—As the *American Agriculturist* will surely be worth the $1.50, the books obtained under the above arrangement will be equivalent to 66⅔ cents *extra* on every dollar invested.

Union Books.—If some one will be enterprising enough to start the work, it will be an easy matter to find, in *any* neighborhood, from ten to a hundred persons who will contribute $1.50 apiece for which *each* will receive this paper a year, *and besides*, there will be $10 to $100 worth of good books, which can be kept by one of the number, and circulate among the subscribers until all have read them, and then they can be kept together for reference or re-reading whenever desired by any one.

Is there Any Doubt that it always *pays* to read about what *others* do and say, and think, who are in the same line of business or work as ourselves. If one does not at first get direct information specially and at once applicable to his own work, yet the thoughts and methods of others incite new thoughts and plans in the reader's own mind that lead to profitable results. The reading, thinking man, makes his head help his hands. Brains tell everywhere, and in nothing more than in farming, gardening, and housekeeping. And the fewer brains one has, or thinks he has, the more anxious should he be to get from books and papers all the facts and suggestions he can from other people's thinking and experience.

Every German Cultivator and Laborer on the Farm, or in the Garden, and every German Family not reading English, OUGHT to have the German edition of the *American Agriculturist*. It contains not only the Engravings, and all the essential reading matter of the American edition, but an additional *Special German Department*, edited by the Hon. Frederick Münch, of Missouri, a skillful and successful cultivator and excellent writer. No other German Agricultural or Horticultural Journal in America has been so long issued; no other one contains so much useful information, or a tithe of its engravings. Indeed, we recall only one other German professedly Agricultural Journal in all this country. The Germans are a reading, thinking people, and know how to make good use of what they read. Many supply this edition to their German laborers and gardeners, and all would find it pay to do so.—Nothing else can compete with it in cheapness of price for the same amount of material, engravings, etc., because the expense of providing all these is largely borne by the edition in English, and no separate office or machinery is required beyond German editors and printers. Its terms are the same as the American edition, singly and in clubs; and clubs can be composed of subscribers for either edition, or a part of both.—☞ Please call the attention of your German neighbors to this paper. It will do much to help new comers to a knowledge of the system and modes of culture used in this country.

Save the Index.—It is printed on an extra sheet, and put in loosely, so that it can be bound or stitched in

front of the year's numbers, for ready reference.—By the way, a glance at this sheet will show how great a number of topics have been talked about, and illustrated in this single volume. The next Volume will be quite as full mainly of fresh hints and suggestions, etc., with new, larger type in the body of the paper. No one, we think, will exercise wise economy if he fails to secure every number for 1881.

Bound Copies of this Volume (39) will be ready on or before Dec. 10th. They are in the uniform style, cloth, with gilt backs. Price at the office, $2. If sent by mail $2.30. We can supply, at the same rate any of the 23 previous volumes, or from volume 16 to 39 inclusive. Any *ten* or more volumes, in one lot, will be supplied at the office for $1.75 each; or be forwarded by mail or express, carriage prepaid, for $2 each.

Binding.—Sets of numbers sent to the office will be bound up in our regular style for 75 cents per volume, with 30 cents additional if to be returned by mail. Any missing numbers supplied to complete volumes at 12 cents each. The prepared covers, ready for inserting the numbers by any bookbinder, sent by mail for 50 cents each.

About Club Subscriptions and Rates, etc.—Every P. O. receiving papers, whether one or a dozen, must have a separate Book Entry, and a full wrapper and address. If three, five, or ten papers go to the *same* office, they all go under the same entry, and under one wrapper and address, with a simple slip on each giving the subscriber's name. Every added name diminishes the proportionate cost of each, for time and wrappers, throughout the year. Again: In all business, "wholesale" rates for increased quantities are lower. Lastly, the lessened cost is an inducement to subscribers themselves to enlarge the number. So, while for this Journal, with its superior printing paper, its many engravings, requiring slow careful printing and frequent washing of plates, its careful editing, and the number of experts required for accuracy where there are tens of thousands of varieties of plants, fruits, animals, insects, implements, modes of cultivation, etc., $1.50 a year is a low rate. Yet experience has shown that a scale of rates can be adopted like this: "One or two subscribers, $1.50 each, Three subscribers, $4 ($1.33 each), Four for $5, five for $6, and so on, until ten is reached, at and after which the lowest possible club rates of $1 each is adopted, and must necessarily be adhered to.—*Yet Clubs may be increased with advantage to the subscribers.* Any one forwarding a club of say four at $5, or $1.25 each, may add other names at the same rate if to begin at the same date. But when several additions are made by the same person, the whole may be reduced *to him* to the rate for a larger club. Thus, if he has sent four at $5, he can send six more for $5, that is *ten* in all, for $10.

N. B.—The above scale of rates has nothing to do with the giving of Premiums. The premiums are a separate matter; they are paid for out of advertising receipts, on the principl that by securing enlarged circulation they thereby increase the *value* of advertising space, and bring more receipts out of which to pay the premiums.

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Distribution of Carp.—Since the publication of the illustrated article on the European Carp, in January last, we have had a multitude of inquiries as to the method of distribution of this valuable fish. Upon a recent visit to the Fulton Market, in this city, we saw, at E. G. Blackford's stand, a large tank filled with upwards of a thousand young carp, about three months old. Mr. Blackford is State Fish Commissioner, of New York, and these carp have been received by him from the United States Carp Pond at Washington, and are for gratuitous distribution throughout the State of New York, to persons having suitable waters for growing them. A pond with a muddy bottom is preferable, that there may be an abundant growth of plants during spring and summer. The carp are vegetable feeders, and should be the only fish occupying the pond. Applications for these fish are to be made to Mr. Blackford; the largest number supplied to one person is five pairs. Those who send for the Carp must provide the requisite cans for their transportation.

Exports of American Apples.—Reference is made elsewhere to the unusually large shipments of our apples to European ports. When informed a few weeks ago in Covent Garden Market that there were at that time 13,000 bbls. of American apples on sale in London, the quantity seemed so large that we feared there might be some error in the figures. Recent interviews with some of our shippers show that the figures far exceed anything we had supposed. We learn, from reliable sources, that up to Nov. 3d, 280,000 bbls. of apples had arrived at Liverpool. It was estimated that, at the above date, at least 100,000 more bbls. were on the way. That there had been received at London, Glasgow, and other ports, 200,000 more, making a total of 580,000 bbls. of apples exported up to the first week in November.

Guinea Grass.—In an account of this grass, in March, 1877, we indicated that it had become thoroughly naturalized in some of the Southern States, the result of early experiments in its cultivation. "L. A. B.," Little Rock, Ark., sends an extract from the "Memoirs of the Philadelphia Society for Promoting Agriculture," 1814, which shows that the Guinea grass was cultivated in Jefferson Co., Ky., by Jos. B. Oglesby, at that early date. Though Mr. O. is quite as enthusiastic as to the great value of this grass as are some of the present writers, claiming that it yielded "ten times as much as timothy," it does not appear to have made much progress. Both this and the Durra have been cultivated since the early part of the century, and though they are brought forward at intervals, they for some reason fail to make themselves a place among the regular farm crops. Mr. B. kindly quotes the remarks of the Editor of the "Memoirs," on the botanical relations of the grass, which shows that he knew but little about it. The accepted botanical name of the grass is *Sorghum Halepense.*

Locust Trees from Seed.—"W. S. U." Myerstown, Pa. The better way is to sow the seed in a seed-bed, and transplant the young trees when one, or better two years old. Spring is the proper time; pour scalding water upon the seeds, and when cold sow them in light rich soil, dropping them 6 or 8 inches apart. Keep the bed clear of weeds during the summer.

Learning Phonography.—"W. B. W." The fact that Mr. Chaffee, of Oswego, N. Y., has an advertisement in our columns shows that we have been satisfied that he will do what he proposes. That he can surely teach you or any other person to become an accomplished phonographer, does not depend upon the teacher alone. The scholar is an important factor in that problem. Your best course is to correspond with him rather than with us.

History of the Mass. Horticultural Society, 1829-1878.—Boston: Published by the Society. This handsome volume of nearly 550 pages, while full of local interest, has a value to every horticulturist in the country. Being, with the exception of that of Pennsylvania, the oldest society of its kind, its history must be in good part the history of American horticulture. Perhaps the most valuable portion of the work is the sketch of the History of Horticulture in the United States, previous to the founding of the Society, which brings together much concerning our early history that will interest those who are not horticulturists. Though his name does not appear upon the title page, the completeness of the work is due to its Editor, Robert Manning, the present Secretary of the Society, who possesses the industry and appreciation of the necessity for accuracy that eminently fit him for the task. A portrait of the first President, Gen. H. A. S. Dearborn, and views of the present and former halls of the Society embellish the volume. The work was published by subscription of the members of the Society, but we learn that the Secretary can supply a limited number to others at $3 each.

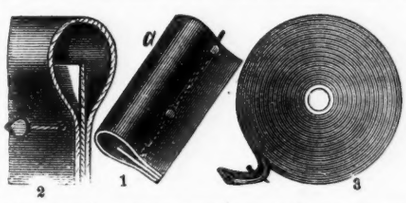
Barrel Cart Again.—"R. C. J.," Opelika, Ala., writes: "I was interested in your cart shown in the Oct. No., for hauling barrels and tubs of slops for hogs and cattle. I have one which I have been using since 1860, which I think is much more convenient and cheaper. I use a pair of buggy wheels, with the axle shortened, so as to barely let a barrel, set on end, pass between the wheels. I then fasten the shafts to the axle, letting them extend beyond it far enough to pass under an iron pivot on each side of the barrel. The pivots rest in a notch on each shaft near the end, so that when pressure is applied to the long ends of the shafts, the barrel will be raised up and still keep perpendicular. One of the great advantages of such a cart is, that it can be so easily attached to different tubs or barrels. The length of the shafts is in proportion to the size or strength of the man or boy who is to use it."

Millet for Name.—"J. O. K.," Kearney, Neb. The specimens appear to be of that variety of Hungarian Millet which was introduced a few years ago as "Golden Millet." It has been tested to some extent as an annual grass, and has been highly spoken of as giving a heavy crop of hay, which, though coarse, is much relished by farm animals. It is cut soon after flowering, and long before the small, globular grain matures. The seed is produced in great abundance, and affords food for poultry and pigs. Horses are fond of the grain, but we should not feed it to them, as the rough bristles that accompany the grains have sometimes been injurious.

Keeping Peas and Beans.—"S. A. C.," Milledgeville, Ga., writes: "I have observed from time to time complaints of the difficulty of preserving peas and beans from the weevil, particularly in the South. Your subscriber, several years ago, found an effectual means, and I give it for the benefit of those desiring to keep their peas and beans free from weevil. Harvest and dry the seeds thoroughly in the sun, and then place them in jars, cans, or barrels, which have been heated before the fire, deposit in the vessel a bottle of turpentine, not corked, but simply closed with a piece of cloth. Expose the vessel now and then to the sun, keeping it closed as near air tight as possible. The fumes of the turpentine kill the larvæ of the weevil that have hatched from eggs deposited when the seeds were green."

Apples and Milch Cows.—Sweet apples do not hurt milch cows, unless fed in too large quantities. Many sour apples certainly decrease the flow of milk. A few do not seem to hurt either the cows or the milk.

Shut Out Cold and Save Fuel.—A narrow crack or opening by the side of, or under, a door or window, will let in more cold air during winter than a ton or two or more of coal will warm. Besides, a draught, however small, is productive of colds. A strip of listing, or a weather-strip put on, will save fuel largely, as well as save health. Weather strips are now very common. Those consisting of a strip of wood and rubber are good when easily obtainable. A new form, introduced last year, is very convenient for sending anywhere by mail. This is a narrow rubber sheet curved over to form an elastic cushion, *a*, and its edges are sewn to a strip of thin tin, as shown in the engraving. Fig. 1 gives a small size. Fig. 2, of double size, shows the form better. Small tacks, driven through the holes in the tin at every two or three inches, fasten these strips against the edge of



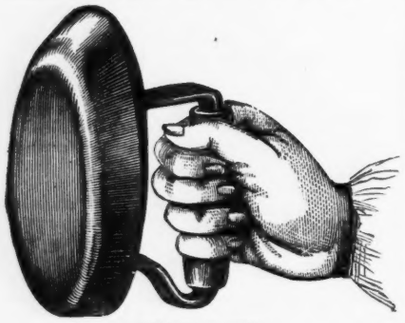
a door or sash. The elastic rubber cushion, *a*, closes the opening, but allows the sash to be raised or lowered. It comes in lengths of 25 and 50 feet, coiled as shown at the right-hand, figure 3, so that it can be mailed at a cost of half a cent per foot on pre-payment of postage. The price is about 5 cents a foot, or 5¼ cents, if sent by mail. Our readers who cannot obtain it elsewhere, may send to this Office, and we will procure and forward what they may desire, in even lengths of 25 or 50 feet, at the above prices. This is for the best half-inch-wide kind. There is a cheaper kind, which may answer for temporary use a season or two, supplied at one cent less per foot. The size shown in fig. 1, answers for both doors and windows. A narrower strip that will answer for windows, costs 4 cents per foot, or 4½ cents if sent by mail.

"Curious Plant."—"D. D. R.," Polk Co., Minn., writes: "Enclosed find seed and fibre of a curious plant found here. It grows about three feet high, and has several bulbs resembling those of the cotton plant, and has a good handful of fibre in each bulb. What is it? When found they had burst open and the cotton was protruding. Only three stalks have been found, and they were among bushes under the trees, and were probably some chance dropping of the birds."—The seed and fibre is that of the Common Milkweed (*Asclepias Cornuti*). This is a common plant in rich ground almost everywhere, and is counted a troublesome weed in some localities, and one exceedingly difficult to eradicate. The flat seeds contained in large pods, are provided with a copious tuft of silky hairs, which serve with the aid of the wind, to distribute them. The "fibre" has no textile value.

Lucern or Alfalfa.—"A. L. F." asks if it can be grown in New England. We know that it is cultivated with success near Boston, where the winters are quite severe. The seed is kept by all the seedsmen.

The Death of R. F. Johnstone, Editor of the *Michigan Farmer*, took place in Detroit, on the 24th of October last. Mr. J., a native of Ireland, came to this country in his youth, and for the last thirty years had been an active promoter of the agricultural interests of Michigan, both as an Editor and as Secretary of the State Agricultural Society.

Shirt Bosoms and Collars.—We are again asked how they are done up at the laundries, as they have so much better polish than can be produced at home. We looked up the matter several years ago, and learned from the proprietor of a large laundry that the polish was entirely due to hard rubbing with a "polishing iron." This iron is shaped like a common flat-iron, but without corners, as shown in the engraving here given, and it has a smooth and very brightly polished steel face. Such polishing irons can be had at the city



A POLISHING IRON.

furnishing stores. The linen is starched in the usual way and ironed. Some use a little gum arabic, others spermaceti, and others nothing. The ironed bosoms and collars have a damp cloth passed over them and are then polished by the use of the iron mentioned, the ironer bearing on hard and rubbing the surface of the linen rapidly.

Black Walnut Stain.—A few years ago we gave directions for staining pine or other white wood a brown color, somewhat like black walnut, by the use of umber. We have since found a much better method. Dissolve an ounce of Catechu in a quart of boiling water, adding a lump of Sal-Soda the size of a hickory nut. Dissolve an ounce of Bichromate of Potash in another quart of Water. The articles are not expensive, and may be had at any drug store. To stain the wood-work, first paint it over with the solution of Catechu and allow it to dry; then go over it with the solution of Bichromate. When thoroughly dry a coat of Shellac or other varnish will bring out the grain of the wood. The solutions may be made stronger or weaker according to the depth of color desired. Picture frames, book-cases, and work made with the scroll-saw from very common material, may be thus treated with most satisfactory results.

Look Out for the Water Pipes.—A friend who at much expense introduced water into his country house remarked to us. "Ever since I have had water I have had trouble." Unless a house is warmed throughout there should be provision for shutting off the supply and letting out the water which remains in the pipes. The waste pipes also need looking to, for whenever water freezes in a pipe there will surely be a leak. Where water pipes are in daily use there is seldom much danger of freezing except during the night. Such pipes, where exposed, should be protected by wrapping with old carpet or encased by a box which may be filled with leaves. If circumstances admit of it the water may be allowed to run slowly during cold nights. Rats often cause much trouble by gnawing lead pipes Some say that this is to get at the water, but others claim that it is merely rat-nature to gnaw whatever will yield to their teeth. Whatever may be the reason for this gnawing, it should be kept in mind as something likely to occur.

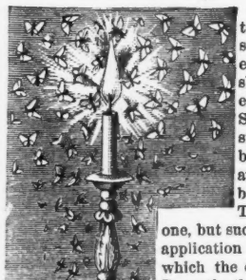
Chilblains.—It is not necessary that the feet should be actually frozen to produce chilblains. Children often suffer intensely from this cause; after playing out doors in the snow and getting their feet very cold they come into the house and warm their feet by the fire. These sudden changes produce an unhealthy condition of the skin of the feet, the proper circulation is interfered with, and there is intense itching and burning. The following was a popular chilblain lotion some years ago: Sal-Ammoniac ½ oz., Water 1 gill, Alcohol ½ gill, and Muriatic Acid 1 dram. We have seen the application of Kerosene highly commended for painful chilblains, but have not had occasion to try it.

Lime for Fertilizing.—"A subscriber of many years standing" asks: "In applying Lime to land for fertilizing purposes, is it best to use it in the caustic state, or after it has been slaked with water?"—As lime comes from the kiln it is known as caustic or quick lime, the heat having expelled the carbonic acid gas of the carbonate of lime, or limestone. By exposure to the air, and moisture, water and carbonic acid gas are absorbed, and the caustic lime returns to the carbonate. While this change is going on the lime has the power of decomposing vegetable matter, and setting the elements of plant food free: this is the chief value of lime when applied to a soil. It is therefore clear that the larger the per cent of the lime that is in the caustic state, the more efficient it is, and the quicker the lime is applied after burning, the better. Lime is largely a secondary fertilizer.

"Tom Brown," and the New Rugby.—Probably no work for young men has been more generally read on both sides of the Atlantic than "Tom Brown at Rugby," in which the author, Thomas Hughes, gives an account of his life at the celebrated English school at Rugby. The author, now a member of Parliament, is greatly interested in the welfare of his countrymen, and identified with coöperation and other schemes for the benefit of working people. He hopes to benefit farmers by aiding a portion of them to leave England and go where there is more room and land is readily acquired. As the head of a company for this object, Mr. Hughes has recently been in this country to establish a colony on the table lands of Tennessee, which is now fairly started and is called Rugby after the English town. We regret that we were unable to accept an invitation to attend "the opening of the town site" which took place on the 5th of October last. The chief feature of the exercises was a most sensible address by Mr. Hughes himself. Though started for the benefit of colonists from England, others are not excluded if they will accept the conditions of admission. The enterprise is in no sense a charity; the title "Board of Aid to Land Ownership," indicates its object, which is to assist those who have some means to invest them in the best manner. The Post Office address of the new settlement in Rugby, Morgan Co., Tenn.

Sweet Corn—Quick Returns.—"W. F. W.," Bridgeton, N. J., writes: "I had for dinner last week some sweet corn, which grew from seed that was raised this year. It was of the excellent 'Early Minnesota' variety, the first planting of which was on the sixth of April; the seed from this first crop was planted and gave the supply referred to."—We have long regarded the "Early Minnesota" as one of the best of the very early varieties of sweet corn, which does not appear to be as generally known as its merits deserve, and we shall be glad if this double crop of "W. F. W." serves to call attention of lovers of Sweet Corn to this excellent variety.

Sundry Humbugs.



In England coöperation and coöperative stores have been long enough established to show that they are most excellent institutions. Similar stores have been started in this country, but from one cause or another they have not been so successful. The principle is a good one, but success depends upon its application and the manner in which the details are carried out. Recently the matter has been revived in this country, and Mr. Thos. Hughes, M.P. (better known as "Tom Brown of Rugby"), on the eve of sailing for home last month, gave a public address in New York City on Coöperation. It is likely that coöperation will now take a new start and, avoiding former mistakes, stores will be established at which those who coöperate may make a considerable saving. There is nothing so beneficient but it may be turned to bad uses, and there is no place in the country where new schemes of fraud are hatched more rapidly than at Cincinnati, Ohio. No sooner is coöperation revived than there comes from Cincinnati, O., the prospectus of a

"CO-OPERATIVE COMMERCIAL AGENCY."

This concern mails circulars to perfect strangers, asking them to act as agents! One circular says: "Your duties will be to make reports when called upon, to collect accounts and negotiate loans." But before one can be qualified to do this, he must subscribe to the "Commercial Reporter," price $2 a year, "invariably in advance," and it is also very desirable that the agent aforesaid should send $2.50 for a tin sign, in order that signs may be "*uniform*" you know. In all $4.50 to start in the business of coöperating. As a bait the following is hung out: "We may (if you become our agent) be in a position to serve you *personally* upon advantageous terms with any loan your business may require, or secure you a *partner* with money, or sell your property for you, and grant you many other favors." When we would learn who is to do all this, we find that it is

"RESPECTFULLY, CO-OPERATIVE COMMERCIAL AGENCY."

If we would know where to find the "Agency," we look carefully over the various circulars; while these are very full on the subject of tin signs at $2.50 each, we find that no other address is given than "Cincinnati, O."—Here is a concern, which claims to have a capital of "Two Hundred Thousand Dollars," without a local habitation! As we look back at Cincinnati, we see in memory looming up through the dim past a "Secret Service Company," that required that "detectives" should subscribe to a $2 paper—but we do not remember any $2.50 tin sign. This coöperation business will not coöperate any better than the "Secret Service," served. Common-sense people keep shy of all unusual ways of doing business.....The Boston papers have of late been much concerned over

"THE LADIES' DEPOSIT,"

which, whether it prove a fraud or not, may properly be placed under the unusual—very unusual methods of doing business. The papers are filled with column after column of fine print, all relating to this concern, which appears to have completely baffled all attempts at investigation. The office, in a richly furnished house, is managed entirely by women; single women, widows, or wives with invalid husbands can do business there. Deposits of not less than $200 or more than $1,000, are received, on which interest in advance is paid at the rate of *eight per cent monthly*. If any depositor wishes to withdraw, her money is paid at once, and she can do no more business at that shop. The parties concerned are not known to keep any bank account, and the whole is surrounded by mystery of the densest kind. Of course, Bostonians are most curious to know what kind of business it is that can afford to pay 96 cents for the use of a dollar for a year. The general impression appears to be that, at some time when the deposits are most abundant, the thing will suddenly stop, but it is merely a conjecture. The Boston papers, their reporters and interviewers have for once met their match in the three women who manage "The Ladies Deposit." .. Several have written about

SPECULATIONS OR COMBINATIONS IN OATS,

which have been going on for several years, particularly in Ohio. The oats in question are the "Hulless," or "Bohemian Hulless Oats," which are claimed to be a new variety that will yield 40 to 60 bushels to the acre and weigh 50 lbs. to the bushel. It is represented that there will be a great demand for these oats for seed, and "Associations" are formed to supply them. The members of the "Association" agree to take five or more bushels of the oats at $10 the bushel, and sign an agreement not to sell for seed at less than that price, or in quantities less than five bushels. The projectors of the scheme vary the matter in different localities, but in all cases the farmer agrees to do certain things while the other party agrees to do nothing. In some cases the farmers gave notes (of course some people always *will* give notes), which were sold as soon as possible. A number of farmers in Medina Co., O., joined one of these "Associations," some of them finding it very difficult to raise the money to buy the seed at $10 the bushel. Now that the harvest is over they find that the yield ranged from 6 to 20 bushels to the acre, of oats weighing about 40 lbs. to the bushel. Having this crop they are puzzled as to what to do with it. They have agreed not to sell at less than $10 per bushel, but they do not find that any one has agreed to pay that or any other price. Our correspondent asks, 1st, "If these parties have exclusive control of the seed in the U. S.?" 2d, "If the oats have been tested and found profitable?" 3d, "What do you think of this manner of doing business?"—These are very sensible questions, but are put rather late. If those persons who have these high priced oats on hand had exercised ordinary caution, they could have learned that

HULLESS OR SKINLESS OATS,

(Bohemian being put on for "grandeur"), have been known in this country for 30 years, to our knowledge, and probably much longer. So far from these parties having "exclusive control of the seeds," the oats may be had from the N. Y. seedsmen at a fourth the price the Ohio people paid. The oats have been tested many times, and have been found to deteriorate so in our climate, that no one has continued to cultivate them. As to this method of doing business, we think it a most profitable one for one party—the one that sells the oats. It is a curious fact that these Hulless Oats have come to the front every now and then for these last 20 years, and always connected with some such one-sided transaction.

THE SPRING-BED CHAPS GOING SOUTH.

The spring-bed swindlers have heretofore operated in New England, but we now hear of them in New Jersey. A young man writes that a couple of these fellows induced his father to take the agency of the spring-beds, He was to take 18 beds, pay $4 each, and sell them for $10, and he "signed an agreement" to that effect. In about two months another came along with the paper, which turned out to be an agreement to pay $10 each instead of $4. The holder of this paper, by threats of law, etc., actually "scared" the father into giving a note for the whole amount, $180! The son now writes us, asking if this note can be collected. We do not profess to give legal advice. We should judge, however, that

the case would depend on the evidence of fraud that may be presented at the trial, and how much of threatening was used to obtain the note. As a general rule such notes are collectable, if the parties who bought them of the swindlers, were themselves acting in good faith, without any collusion, paying their money for what they had every reason to believe were good notes. The makers of the notes should not have given out such notes. How often have we written,

"FARMERS, SIGN NOTHING FOR STRANGERS,"

no agreement, not even your address, if it goes into the hands of a stranger?....It is a long while since we heard of the "Powder to Prevent Lamp Explosions." It has been so thoroughly exposed that we supposed it to be quite dead. Here is a letter from Oregon, the writer of which asks where the Powder can be procured, as he wishes some. Years ago this was a very successful humbug. The peddler went from house to house, showing that when this powder was mixed with kerosene, he could thrust a lighted match into it, and the oil would not explode, and other such tricks. Not being aware of the fact that *oil* never explodes, but that it is the vapor of the oil that is dangerous, many have been deceived by these tricks, and supposed that the powder prevented an explosion. After a while a chap appeared, whose Powder not only prevented the lamp from exploding, but would also prevent the chimneys from breaking. A few years ago we procured some of this wonderful Powder, which, on examination, proved to be only

COMMON SALT COLORED BLUE,

which could have no more effect upon the oil than the same quantity of sand.... There has, of late, been a a great dearth of new medicines, and a new one comes as a surprise, especially when it is "The only known Remedy for the Cure of Rupture"—which is claimed to be "as certain a specific in this dangerous and distressing affliction as Quinine in Malaria." Rupture is a mechanical trouble, which can no more be treated by medicine than can an in-grown toe-nail, and the thing need only to be mentioned to show its absurdity.....For several months we had heard nothing of the Battery business, but just now there come several inquiries concerning them. To these we reply in brief: We have examined all of these so-called "batteries" that have been extensively advertised. They are disks of the size of a half-dollar or smaller, made up of bits of different metals, and are intended to be worn next the skin, over the heart, etc., and great are the virtues claimed for them. We have not seen one of these that did not show

THE MOST UTTER IGNORANCE

of every law of electricity. It would be absolutely impossible for these to produce any electrical effect upon the body. Whatever cures they may have effected are entirely due to the imagination. As much benefit would result from the wearing of a leather medal, or carrying a horse-chestnut in the pocket, as some persons do to keep away rheumatism....For the information of new readers we must add that we know nothing about any

DOCTORS WHO ADVERTISE THEIR CURES.

New York is a large town, and there is no better place for one to hide in than a great city. A great many obscure chaps advertise in distant papers of the wonderful cures done at their infirmary, hospital, or sometimes even "university" in New York, and propose to send out medicine to cure people at a distance. We are often asked about such "doctors." As a general thing they are quite unknown here and do their business through the mails. Our invariable advice is, to have nothing to do with one who advertises his cures or proposes to undertake a case without seeing the patient. The whole crew are unreliable quacks.

P. S.—Since the above relating to the Boston "Ladies Deposit" was in type, we have learned that a similar concern has been operating in New York as the "Ladies Mining and Stock Exchange." It proposed to receive deposits, use them in stock operations and return the depositor half the profits on the investment, and to always return the investment whether it made or lost. Like the Boston affair this was quite too good to last, and one bright morning early in November, Mrs. M. E. Warren & Co. did not open their "Exchange." Callers found a sign stating that "This office will not be open until Wednesday next at 10 A.M." On Wednesday there was a large crowd of depositors, but no Mrs. Warren, who appears to have "gone where the woodbine twineth." Every sensible person knows that all unusual, unbusiness methods of making money must always end in a collapse.

Fowls for Eggs.—"P. E. M.," Columbus, Ohio. Light Brahmas hold on laying in very cold weather, perhaps better than White Leghorns, but on the whole Leghorns are the cheapest and best fowls for you to buy for eggs only. Do not think of hiring an acre of ground two or three miles away. It would be running great risks—you need to live close to your fowls. Begin on a small scale, and let the business grow with your knowledge of it, and with its own profit to a considerable extent. Start with a dozen hens and one cock; nothing fancy—good healthy birds that look as if they might be pure White Leghorns, but be sure that the cock is pure. In a few weeks, if these do well, start another flock, but keep them apart. It may cost $50 to $75 to start in the way suggested, and within a year you will have gained experience to guide your future operations.

Charcoal as a Fertilizer.—"O. J. M.," Pennville, Ind., writes: "Is charcoal a good fertilizer on clay soil? If not strictly a fertilizer, is it of any advantage? I have some old fields and a plenty of wood and could produce charcoal cheaply."—Charcoal is composed almost entirely of carbon, is insoluble, nearly indestructible, though it may serve as an absorbent, is not in itself in any sense a *fertilizer*. When applied to heavy clay soil the mechanical effect of charcoal may be of value in making the soil more porous; but this end can be obtained by using sawdust, straw, and other coarse litter, much more readily than by converting wood into charcoal for this purpose. If the wood is to be disposed of, the quickest and best method to make it available as a fertilizer is, to burn it and spread the ashes upon the soil.

A Kicking Horse.—Mr. "T. M. C.," Duchess Co., N. Y., sends sketches and descriptions of a method

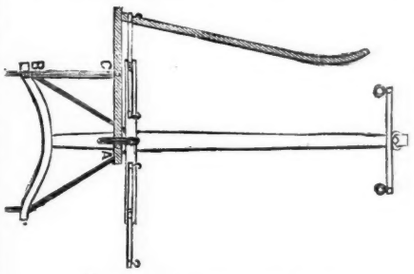


Fig. 1.—ARRAGEMENT OF PARTS.

of hitching a kicking horse to a double wagon. Fig. 1, shows the arrangement of the parts of the "frame" into which the "kicker" is fastened. A piece of wood *A*, *C*, 2 by 2 inches is made to fit behind the whiffletree and reach out as far as the outer trace. A brace, *B*, *C*, runs back from the middle of this, to the tongue bar. The kicking horse is placed inside the thills and harnessed in securely. It does not take long for the horse to give up his bad habit when thus fastened down. A thill is bolted to this end. The arrangement of the frame is shown in larger view in fig. 2.

Fig. 2.—PORTION OF FRAME.

A Heavy Clay Soil.—"W. H. M.," Mount Clemens, Michigan, writes: "I have a piece of heavy clay soil. What shall I use to make it more mellow? Are ashes good on clay or should I use lime?"—Ashes are very good, if you have plenty; they will probably mellow up the surface, so that you can plow in a crop of clover, which will help matters very much. Your soil probably needs thorough draining more than either ashes or lime.

Sorghum Seed, Etc.—"G. W. K.," Washington, D. C.—The seed of most grasses (and Sorghum is a grass) is highly nutritious. Its value depends upon the time at which it was cut, the degree of ripeness, etc. If sound, the seed may be ground and fed to any farm stock. The leaves of the sorghum, if not frozen and dried out so that they become unpalatable, are good food for horses and cows. So is the begasse, or cane, after it is ground, provided it has not soured and heated.

How to Treat Manure.—"Agricola," of Massac Co., Ill., writes: "I would like to understand more fully the action of water upon the manure and litter taken from the stable and cow-shed. Should it be exposed to the rain, freezing and thawing of winter, or sheltered until spring? Would it have time to rot after the freezing weather sets in, and be in time for use on the corn-field?"—It would be much better to have the manure piled up under a shed, than exposed to the weather. Manure, to keep well, must be either packed by treading to exclude the air, or kept so moist that fermentation will not become violent and burn (fire fang) the heap. If exposed to rain and water much of value leaches out, and is lost. If kept under cover, there should be a tank at the lowest point, covered with rails, or a grating where liquids can settle, and be pumped up over the heap again. Add fresh water, if necessary, to secure moisture enough to prevent burning. Such manure is in good condition in spring. The corn crop does not require rotted manure.

Leached Ashes or Horse Manure.—"A Reader," of Tiffin, O. is in a great quandary. "Which is the cheaper," he asks, "strawy horse manure at 25c. per load or leached ashes at 10c. per load? Will it pay to draw either, making two loads a day when the teams have nothing else to do?"—The price paid has very little to do with the question. It is one of hauling. The horse manure can hardly be worth less than $2 a load, and the ashes certainly 6c. a bushel. A load would probably be 40 bushels, which would be $2.40. In one case the team would earn $4, in the other $4.80. The ashes would be best applied to grass and potatoes. The horse manure to corn or wheat.

About the "Dentaphone."—Two strong complaints, and many letters of inquiry, lead us to say: As there are certain nerves leading from the teeth to the ear, it is frequently the case, that in certain forms of deafness one's hearing may be improved by holding between the teeth a broad plate of some kind that will receive on a wide surface the vibrations of sound from the air. Some time since we received, from a firm in Cincinnati, an instrument arranged for this purpose. It was submitted to a scientific physician, who made several tests with it, and reported in its favor. Upon this report, and the further testimony of some good men whom we know, that it had proved useful, we admitted to our columns an advertisement of it, which had been kept out until investigated. Several inquiries seemed to establish the fact that the company advertising them were no myths, but a sound company, who would fulfil their engagements with the public.—Thus much for the present. Two of our subscribers who bought the instrument report that it is wholly useless to them. An expert in this city tells us that it proves useful in some cases certainly, but that in many others it does not—that it is useful only in certain cases of deafness, and no one can himself tell in advance whether it will be valuable or not. In this condition of affairs, we cannot advise any one to purchase one except upon the express condition that it is to be tried, and, if found useful, paid for, and if not, to be returned. That is the only condition on which *we* would take one. We also think the company should either redeem the instruments sold when proving entirely useless, or replace them with some form that will be serviceable.

"Osier, or Basket Willow."—Every now and then we have inquiry as to the cultivation of the "Osier, or Basket Willow," and the probable profits of the crop, a writer sometimes adding that he has a muck swamp especially suited to its growth. It is a very common impression that there is but one Basket Willow, and that is the Osier. The fact is that the common Osier is the poorest of all the Willows, and is only useful for making coarse, heavy work, such as hampers, market baskets, etc. In England and other countries the choice willows are known by local names, such as Whip-cord, Rose Willow, French Willow, etc., and it is these varieties that are used for fine work, such as ladies' baskets, etc. It is a mistake to suppose that willows require a wet, swampy locality. The best basket willows are grown upon good grain land. Another error is, that the basket willows are of dwarf kinds—some of them are large trees, but when cultivated for basket work they are annually cut back to the ground, as only straight rods of one season's growth are of use. As we have before stated, the willow business in this country is in the hands of foreigners, who will not buy American-grown stock at any price. There is no difficulty in growing as good willows in this country as are produced anywhere, but there is no regular market for them. The produce commission merchants manage to get rid of a few willows grown in this country, but they are slow of sale.

Notes on Blue Grass.—In an article in September last, Prof. Gray expressed a doubt that the Blue Grass (*Poa pratensis*) was really indigenous so far South as Kentucky. This has called out several notes from friends in Kentucky and Ohio, who claim that the grass must be a native there. "S C., Jr.," Louisville, Kentucky, thinks the readiness with which the grass takes possession of the soil, "rooting out all other kinds of grass," is proof that it is native. This is, to us, the strongest evidence that it is a foreigner. As the aboriginal man receded before the intruding white man, in a similar manner do plants give way to foreigners. The Wild Oat that covers the hills of California to such an extent, is a European species that has crowded out all native growth, and the same may be said of the Bermuda Grass in some of the Southern States. Mr. C. states that the reason for calling this beautifully green grass Blue Grass, is on account of its peculiar blue color when in bloom, at which time he says the appearance of the grass is most charming.

(*Basket Items continued on page 525.*)

Keeping One Horse—Prizes Offered.

There are vastly more persons who own and keep a single horse than there are those who have a larger number. When there is but one horse, it is most frequently kept and cared for by the owner. The horse may be merely for the use of the family; it may be for the cultivation of a garden or small farm; it may be the means by which a physician visits his patients, or that by which the grocer or other tradesman serves his customers—in all these and a great number of other cases, the animal is more likely than not to be in the care of one who has had no previous experience with a horse—indeed, knows nothing about the matter, beyond the fact that the animal must eat, but when it "gets off its feed," or any of the troubles to which horse-flesh is subject come to his animal is utterly at loss as to what should be done.

In view of the fact that plain and practical directions for the proper treatment of the horse would be useful, the publishers of the *American Agriculturist* offer

Prizes for Essays on Keeping One Horse.

The Essay need not treat upon the kinds of horses, or the buying of a horse, but assuming that the animal is already in possession, it should cover the whole matter of *keeping*. This includes proper stabling; food, its kinds, how to buy, store and feed; grooming, and whatever relates to the care of the exterior of the horse, including shoeing. The Essay should also recognize and show how to avoid, as well as how to treat, the commoner ailments of the horse, such as coughs, worms, colic, etc. Also, the more frequent external troubles, such as grease or scratches, galls of saddle or collar: the hoof difficulties from bad shoeing—in fact, whatever may be properly treated by the owner, without calling in a veterinary surgeon.

The scope and object of the Essay may be indicated thus: Given a young and healthy horse in the hands of a fairly intelligent owner, how is that owner to so keep and treat the horse, in order that it may continue to give him the longest term of useful service at the least expense. The Essays are to be legibly written on one side of the paper only, in black or dark ink (not in red or very pale blue ink, or in pencil), and should not exceed 6,000 words, which is equal to about two pages of the *American Agriculturist* in this type). Sketches for engravings may be sent, if it is desirable to illustrate the stable, or any other points in the Essay.

Cash Prizes.

For the Best Essay	$50 00
For the Second Best Essay	25 00
For the Third Best Essay	15 00

The Essays to be sent to the *Editors* of the *American Agriculturist* on or before February 1, 1881, in a sealed envelope (not a roll), with a motto or assumed name, and an accompanying envelope addressed with the motto or assumed name, and containing the real name and address of the writer. The prizes will be awarded by a committee of competent and impartial judges. All Essays submitted for these prizes to become the property of the *American Agriculturist*.

The Norwegian "Ski," or Snow-Shoe.

One of our subscribers, "M. O. E.," a Norwegian by birth, now living at Norwegian Grove, Minn., sends sketches and a description of the snow-shoes in use in Norway, which are quite unlike those

Fig. 1.—SIDE VIEW OF THE NORWEGIAN SNOW-SHOE.

made by our northern Indians, and copied by the Canadians and others. They are made of straight-grained Ash, or Oak, about ⅜ of an inch thick under the foot, and taper to ⅛ of an inch behind, and ¼ of an inch at front. The shoe is given in side view in figure 1, and figure 2 shows the shoe as

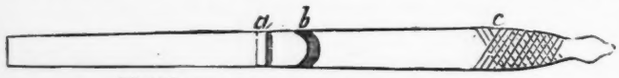


Fig. 2.—THE SNOW-SHOE AS SEEN FROM ABOVE.

looked at from above. The length is 9 feet, and the width is 2¼ inches at the heel, and enlarged to 3¼ inches at the point, where the toe turns up. A small block, *a*, in both engravings, an inch wide and half an inch high, is fastened to the shoe by two screws. This is for the heel to rest against, and to keep the foot from slipping back. At *b* is a strap of strong leather, to hold the foot, and should be of a proper length and distance from the block to fit the foot. It is fastened to the edge of the shoe at each side with screws; it is better to have a piece of tin, with holes punched for the screws, to go over the ends of the strap, as this will prevent the leather from tearing away from the screws. To make the bend at the toe shown in figure 1, scores are cut with a sharp-pointed knife, as shown at *c*, figure 2. In order to make the shoe run straight, a groove is made the whole length of the shoe upon the under side, as shown in section at figure 3. When the shoe is ready to bend, it is smeared with grease on both sides of the part to be bent, and held to the fire, and made very hot; they are then brought to the proper shape by bending upon a log of the proper size, and bound or otherwise fastened in that position for 24 hours. Our correspondent says that in old times these shoes were worn in his country even by the soldiers, who had the right one made about two feet shorter than the left, to allow of making short, quick turns. He says that while beginners may meet with falls, a little practice will make it easy to use them, and that they will be found greatly superior to the Indian snow-shoes, and thinks that the boys will find great fun in sliding down hill, and over snow-drifts, in a manner that would not be possible with the others. The Norwegian name for these is "Ski," and we agree with him that to distinguish them from other snow-shoes, the same name would be best here.

Fig. 3.

Clean Grass Land.

The great majority of meadows, in the older States, are more or less foul with "plants out of place," yarrow, white-weed, thistles, John's-wort, dock, and other unclean herbage. Next after clean tillage, the remedy for these unclean fields is pure grass seed. Designed adulterations in grass seed are probably rare, yet most of the seed sold in our large markets is not entirely clean. Some of it is very foul, and inflicts great damage upon the farmers who purchase it. It adds to the cost of every crop cultivated upon the ground where it is sown for many years afterward. We are glad to notice, in our visits among farmers this present season, that they are taking the remedy for this nuisance into their own hands, and are growing their own seed. However ready a man may be to send foul seed to market, he is not likely to cheat himself, in growing it for his own use. It is not a very difficult thing to clean the half-acre patch, or less, reserved for seed, of all foreign plants, so that the farmer may know that he has pure timothy, red top, or clover seed for his own use. He also has the satisfaction of knowing that the seed is of the previous year's growth, and is very sure to spring up under favorable conditions. The complaint of foul seed is very general, and the proofs of its use, in past years, are abundant on the great majority of farms. It is a rare exception to find a farmer who is thoroughly conscientious in keeping a clean farm, and in raising clean seed for market. Wholesale dealers have the means of detecting foul seed, and of keeping them out of the market, but there is a lack of conscience in trade, as well as upon the farm, and much hay seed, mixed with the seeds of weeds, is sold every year. In the present state of the market it is altogether safest, and cheapest, for the farmer to raise his own grass seed. He is sure then to begin right in stocking his grass land. If he will take a little time, every season, to pull every scattering weed that he may find in his meadows, before, and after mowing, he will be sure to have absolutely clean grass land, which is as profitable as it is beautiful.

To Wash Flannels without Shrinking.—First have soft water for the whole process, made so artificially if necessary, and next have good soap, or that which does not contain rosin. Our best soaps are safe for this purpose. You may wash and rinse entirely in cold water if you choose, but if you wash in warm water you must not rinse in cold. It is decidedly best to use only warm water all through, the rinsing water warmer than the suds, if there is any difference. It is best to make a good, strong, *clean* suds (that is, don't wash the nice white flannels in a dirty suds with other clothes that are to be boiled), and put the flannels in it, instead of rubbing soap into the cloth. Hand rubbing tends to full and shrink flannel, as it mats and interlaces the delicate fibres.

A Simple Portable Fence.

There are many places on the farm, and especially about the barns, where a few lengths of portable

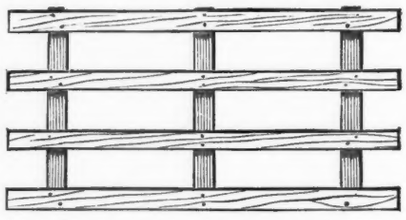


Fig. 1.—FORM OF SINGLE HURDLE.

fence are a great convenience. It may be that an inclosure is needed for some sheep, or a pen is required for a calf, etc. In such cases a hurdle fence of some kind, one that may be cheaply and easily made, and that, when not in use, can be packed away in small compass, is an important part of the outfit of a farm. The accompanying engravings show a simple fence of this kind. Figure 1 gives the form of a single hurdle, or length, made of four strips of inch board, twelve feet long, and of a width depending upon the purpose for which it is to be employed; a fence for small stock will need wider boards than for turning large animals. The perpendicular pieces are three in number, the outer ones set far enough back from the ends to allow the supporting posts, fig. 2, to take the position shown in figure 3. The next to the upper strip rests in the crotch of

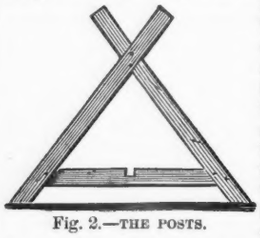


Fig. 2.—THE POSTS.

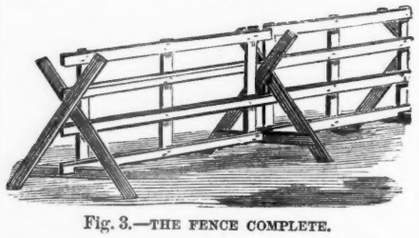


Fig. 3.—THE FENCE COMPLETE.

the posts, while the bottom strip fits into a notch in the cross-piece, near the feet of the posts, thus making the fence firm and secure. The hurdles and supports, with the manner of setting up the fence, can be understood from the engravings.

"Eurotas'" Wonderful Butter Record.

We have no authoritative system of testing the butter or milk yield of cows. If a horse is vaunted as trotting in less than "2:20" the claim is disregarded unless it has been done "in public." He has no record unless a public one. We may believe the statement or not, according to our knowledge of "the man who held a watch on him." With cows it is different. They have, and at present can have, no public record. The two butter cows which are above all others famous in this country really live public lives—everybody interested knows or may know almost everything about them. As trials go along they are reported in the papers, the butter is shown and seen, and the cows have numerous visitors. Prying and inquisitive

some are, no doubt, and if a suspicion of unfairness had been breathed, every one would have known it.

"Eurotas" has just closed her year, and presented her owner a beautiful solid-colored heifer calf, by the "Duke of Scituate," son of "Jersey Belle of Scituate," thus crossing those two famous strains of blood as near to the fountains as possible.

"Eurotas" calved October 31, 1879, and again November 4, 1880. All the milk was weighed, set, skimmed, the cream churned, and the butter weighed from the 10th day of November to the 15th day of October, being 341 days. From the figures furnished we have calculated approximately the daily yield both of milk and butter, which shows some curious variations as the time goes on from calving to grass (at which time there is a notable increase both of milk and butter), and from grass to calving again.

Month.	Total Milk. Lbs.	Per diem average. Lbs.	Total butter. Lbs. oz.	Per diem, average. Lbs. oz.
Nov'ber (21d.)	451	20 1/2	40 1	1 14 1/2
December	755	24 1/5	74 0	2 2
January	746	24 1/15	79 2	2 8 5/8
February	667 1/2	23	77 1	2 10 1/2
March	653 1/2	21 1/12	75 6	2 7
April	602	20 1/15	68 11	2 4
May	770 1/2	24 7/8	87 11	2 13
June	837	27 9/10	88 6	2 15
July	760 1/2	24 1/2	80 5	2 9
August	704	22	66 7	2 2
September	454 1/2	15	32 5	1 1
October (15d.)	123 1/2	8 1/5	8 10	9 1/5
Total	7,525	22 1/28	778 1	2 4

The yield of milk is, of course, not extraordinary, but that of butter is unsurpassed. The nearest approach to it is that of "Jersey Belle of Scituate," whose yield was 705 pounds. There was a time in June when "Eurotas" was giving three pounds of butter a day, or a little over, but this was not continued through one calendar month. She yielded an average of two pounds and four ounces (2 lbs., 4.03) a day for the time she was milking, and two pounds two ounces (2 lbs., 2.03) for the year.

The record clearly indicates that either the cow was not well throughout the year, or she was not fed so that she could do her best. In our opinion, with a well arranged ration of hay, roots, bran, and meal, no such great difference between the yield on hay and mixed food and on grass ought to be observable, as seen in this case.

Great Exports of Grain Continue.

After three years of good crops here, and the poor ones in Western Europe, which opened a market for our supplies, we could hardly expect a continuance of the good fortune, and grave fears were generally entertained that the large supplies of 1880 would result in a great overstock which would sink prices to a very low figure. But now Eastern Europe is deficient, and the competing supplies of wheat usually sent from the Black Sea region will not appear. So all we have to spare will find a market abroad at remunerative rates. A study of the condensed tables in our market reports will always be found interesting. Thus we see by table 4, on page 526, that from January 1 to November 8, the exports of Wheat and Corn from New York City alone have reached the following enormous figures, reckoning a barrel of flour as equivalent to five bushels of wheat:

	1880.	1879.	1878.	Total.
Wheat, bush.	72,781,000	70,878,181	58,182,823	201,842,004
Corn, bush	45,141,000	29,248,000	24,019000	98,408,000
Total bushels	117,922,000	100,126,181	82,201,823	300,250,004

Or the total bushels of these two articles of breadstuffs exported from New York alone for a little over ten months of three years exceeding *three hundred million bushels* (300,250,004). During the same periods, some seventeen million bushels of Rye, Barley, Oats and Peas were exported. And these exports are still continuing and will continue on a liberal scale well into next summer. As will be noted in the market report, we have on hand already in our markets "visible supplies" of nearly forty million bushels of wheat and corn, besides the large stocks still on the farms.—One can hardly comprehend the magnitude of the figures without taking some such illustration as this, to wit: That a *single* million bushels will load 4,000 freight cars with 250 bushels each, or 25,000 wagons with 40 bushels each.—Note that above we have only spoken of one shipping port, for part of the years, and have not taken into account San Francisco, Philadelphia, Baltimore, Boston, and numerous other exporting points of considerable importance.

Corn Shellers—The "A. B. C."

There is probably no farm implement of which inventors have presented so many forms as the Corn Sheller. It must rank very near the washing-machine in the records of the Patent Office. As in many other cases, when a really effective machine is produced, it is found to be exceedingly simple. The "A. B. C." Sheller may be instantly adjusted to shell the smallest pop-corn, or the largest horse-tooth varieties; it removes every kernel, delivers the corn at one place, and throws out the cobs at another. A small fan blows the chaff from the corn; it runs with ease and works rapidly. An examination of the interior shows it to be of the simplest structure; nothing to get out of order. Even the most careless "help" would find it difficult to disable the machine. The engraving represents this Sheller, which it will be seen is very compact, taking up but little room, either in transportation, or when set in its place. Mr. Cohu, who makes the implement, informs us that it has met

THE "A. B. C." CORN SHELLER.

with a very general acceptance in Central and South America, and that the demand from those corn-growing countries is very large.

Coöperative Stores.

We are in the receipt of numerous letters asking about coöperation, and have been at a loss what to reply or what to recommend. Now, however, thanks to the visit of Mr. Thomas Hughes to this country, and to the exertions of certain respectable citizens of New York City and County a "Central Coöperative Board" has recently been organized to promote the formation of local Coöperative Societies all over the country. A large number of the best and most public-spirited citizens of New York offered, through this society, a public reception to the English philanthropist and statesman, which was very numerously attended. Mr. Hughes addressed the meeting on the subject of coöperation, and in this admirable address and the speeches which followed, the subject was earnestly pressed upon the American people. The plan is briefly as follows: Consumers of groceries and manufactured articles in any place unite in forming a society; they determine the price of one share of stock and the number of shares, and organize under the laws of the State for forming joint-stock companies. The shares may be paid for in whole or in part. The money is taken to buy the goods needed at wholesale. These are sold for cash at usual *retail* prices, no effort being made to undersell other stores. The storekeeper and clerks, if he or she has them, are paid salaries, and the profits are divided quarterly among the stockholders *in proportion to their purchases.*

It is a prime principle with the "Coöperators" to have nothing to do with adulterated or misrepresented goods of any kind, and to sell consumers such articles as they need of the best quality.

There is already considerable important literature on this subject, chiefly in the form of speeches and addresses; enough of this will be sent by the Central Board to any applicants, to give a good idea of the scope of the enterprise, and of how to best go to work to start a coöperative store in any neighborhood. Those desiring further information would do well to address "The Central Coöperative Board, No. 291 Broadway, New York." We may add that in many cases coöperative stores in England have paid very handsome dividends to stockholders, and that the number of such stores in that country is largely increased year by year.

Forty Years!

As the *American Agriculturist* for 1842 constituted Volume **1**, the numbers for 1881 will complete the **"Two Score"** or round **40 Volumes!**

It would be interesting to go over the history of these years had we space. Forty years ago there were few railways, no ocean steamships, and no telegraph. To send the briefest message eighty miles by mail cost 18¾ cents postage for *each* small piece of paper. Harvesters, mowing machines, cultivators, horse-rakes, and a hundred other improved implements were unknown. We well remember our great satisfaction, not long before that period, at getting a cast-iron mould-board plow in place of the wooden one previously used; also at buying cut nails at 16 cents a pound, instead of using wrought nails hammered out on the blacksmith's anvil. We also recall the excitement on our then far western farm, upon the appearance of our first "Elliptic" or steel-spring wagon. Also the advent of the fanning mill, and of the first cooking stove, with its bake oven, etc. An earlier number of this journal described the first steel plow. Sewing machines were scarcely thought of; every stitch was done, one by one, with weary fingers and aching eyes.—The above are but specimens of a thousand improvements since No. 1 of this paper went out on its mission.—What changes in our own land and government! What was then the western edge of our cultivated country is now east of its center. The map of Europe differs widely from *our* school geography. The powerful Germany of to-day was not in existence, save as a great number of petty States, with hardly a bond of union in government or interest, except the similarity of language. Almost the same of Italy.

Of the first thousand Readers of the *American Agriculturist*, less than a hundred to-day remain alive. Of the half million Subscribers whose names have been on our mail books during these forty years past, between three and four hundred thousand sleep beneath the soil they cultivated. But most of them no doubt did their allotted work well, and they have gone to their reward.

We are spared, and as we begin the work upon our 40th Volume, it is pleasant to know that some of the first readers still remain as patriarchs in the *Agriculturist* family, along with tens of thousands of the second and third generations—the sons and grandsons, and the daughters of earlier readers.* With these are numbered many other thousands of newer readers, who are heartily welcomed. We trust they will find in our columns much that will interest, and much that will profit them.

We shall now begin our work upon Volume 40 with cheerfulness, with earnestness, with added experience, and with a determination to make it eminently worthy of its distinguished place in the series. We invite every present reader to continue with us, and to bring along troops of new friends. Our best efforts will be put forth to do them all the good possible.

* We shall be much pleased to receive a brief note or letter from each present subscriber, who has been a continuous or nearly continuous reader from the first No.

Trusses in Barn-building.

Our barn-cellars, and often enough the principal floors of barns, are obstructed by piers or posts, which seriously interfere with the room, and yet more with their convenient use. A correspondent sends us sketches of his simple trusses. They are

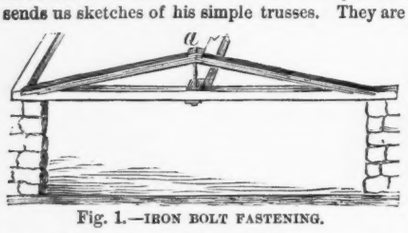


Fig. 1.—IRON BOLT FASTENING.

of two forms: one in which the brace-beams are fastened to the tie-beam by a long iron bolt, fig. 1; the other in which the brace-beams are notched into an upright post, shown in figure 2, the post being bolted to the tie-beam by a bolt, holding by a nut let into the post like an bed-screw. This is shown in figure 3, which is a view of the truss from below, looking upward, showingthe iron-plate crossing the tie-beam of the truss, and supporting the string-pieces on which the floorjoists rest.

The sills and cross-beams of a barn, fifty feet wide, need but a single supporting post or pier

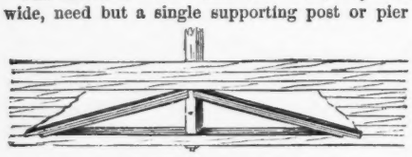


Fig. 2.—WITH AN UPRIGHT WOODEN POST.

each in the center. The trusses, 25 feet long, being made of 4 by 8 timber set edgeways. Inch-and-a-quarter iron bolts are needed, with half-inch washers, both for the heads of the bolts and for the nuts. When the upper ends of the braces are mortised into a post (fig. 2), three-eighths or half-inch plate-iron should be used as shown in figure 3, instead of washers under the head of the bolt. There is room for such trusses on the outside, under the windows, and within the barn in the partitions—each side of the barn floor, and wherever partitions occur, as between bays. It is not difficult, with a little contrivance, to strengthen a cross-beam so as to take a post out almost anywhere where space is needed—in the cellar or elsewhere. Such a change, when made, will often be found so great a convenience in turning carts and wagons in a cellar, that the wonder will be that it had not been made long before.

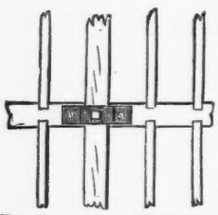


Fig. 3.—BOTTOM OF TRUSS.

"How Pure Milk May be Supplied to Boston."

This is the title of a pamphlet embodying a plan submitted by the Worcester West Milk Producers' Association to the producers and consumers of milk for the city of Boston. At the outset a very plain truth is stated in a very plain way: "To sell milk as milk is probably more difficult than to sell anything else raised on the farm." The present bad state of the milk trade is presented under the heading *Adulteration:* "It is safe to say that the majority of well-to-do people in the city, not to speak of poor people, are supplied with milk which is a libel on the cow which is supposed to have produced it." For this there is claimed to be a remedy. An organization is proposed similar to the notable Aylesbury Dairy Company that has been so successful in London, England. The capital stock is divided into small shares, a portion of which is to be held by the consumers, the balance of the stock, and the larger part, to be in the hands of the farmers, the object being to get the largest number of producers and consumers interested who will work for the welfare of the company. The chairman of the State and City Boards of Health is to be, by virtue of his office, one of the directors of the company. A chemist is to be employed to inspect the milk. "We believe the majority of farmers are honest and never send to market any milk that has been watered. But human nature is weak, and farmers being human, it would do no harm to have them bolstered up by a chemist to keep them from going astray." A similar organization has been in operation for eight years in the city of Syracuse, N. Y., with a success equal, though on a smaller scale, to the one in London. Under such a system each producer sells his own milk, because it is through a company of which he is a stockholder, with stock just in proportion to the amount of milk he has to sell. This is a matter which concerns other cities than Boston. The inhabitants of every town and city are interested in the milk supply, and the sooner some practical method can be devised for the distribution of absolutely pure milk the better it will be for both the consumers and the farmers who produce it.

Tenant Houses on Farms.

We are near the end, we trust, of a transition state, from dear and irregular labor to that which is cheap and steady upon our Northern farms. In the older States, since the war, the policy has been to get along with as little labor as possible, and to hire only in the summer by the month or day during seed-time and harvest. On hundreds of farms very little labor is employed beside that of the owner and his boys. The result is seen in the two facts that the population is waning in these districts, and many of the farms are for sale at first cost of the buildings upon them. In the olden time, in New England, we had cheap and abundant labor, and of the best kind. Farmers' sons, trained from their boyhood to farm work, hired out for years to accumulate capital enough to stock a farm and start business for themselves. They lived in the families of their employers, and were skillful and reliable help. This class of labor is almost unknown now. The cities, the factories, the colleges, the schools, the new States and Territories take nearly all our farmers' boys and girls, and we have to depend on foreigners for help. This is likely to be our main dependence in the future, and we must make the best of it. There is a reluctance to take them into the family as boarders, not so much on the score of prejudice, as of increased labor in the household. So the farm hand is hired only by the month or by the day, and much of his time is idle for want of employment. The farm suffers for want of labor, and he suffers for the lack of employment. What is wanted now is a cheap, comfortable farm cottage, where the laborer can have a steady home, and the farmer can have steady, reliable labor. The advantages of this course are manifold to both parties and to the community. The farmer, in the cottage, makes a handsome addition to his capital. It costs, say, six hundred dollars in money, material, and labor, most of which is furnished from the farm. This is to pay eight per cent interest on cost, to be paid in labor every month, say, four dollars a month. The farmer needs the work, and it is as good to him as the money. The investment is in his own hands, and more sure than savings bank or railroad stock, as long as he runs a farm. He secures, also, steady, reliable help every day in the year, and can lay his plans to grow his crops, and make his improvements intelligently. He knows just what his labor is going to cost him, and what improvements can be made. This labor, under his own training, is all the while increasing in skill and effectiveness, and he can use machinery in growing and harvesting crops to the best advantage. He also secures a good home market for a part of his farm products. His tenant has a wife and family, and the supplies of fuel and food would naturally come from the farm. Many other supplies of dry goods and groceries, would come from the store where the farmer traded, and could be paid for in barter, so that rent and farm products would pay for from one-half to three-fourths of the labor bill. This arrangement would solve the question of board. Extra hands, if needed, could board at the cottage. The laborer would gain quite as much as the farmer. He would have, to begin with, an employer interested in his welfare, and in the improvement of his skill and his moral condition. He would have a fixed home, and the means of supporting his family in comfort. He would have remunerative employment for every day in the year that he was able to work. No time would be lost in waiting for a job, no apprehension of the failure of fuel and bread. He would have good schools and church privileges for his children, and they would have as bright prospects in life as any of their neighbors. Society would gain very much by this arrangement. There would be two families instead of one on the farm, and if this custom should become general, there would be a large addition to these districts that are now waning in population and wealth. The school houses and churches would be well filled again. The farms would have plenty of labor, increase in productiveness, and rise in value. In short, prosperity would be restored to these waning agricultural districts. Let us have Tenant Houses on our large farms, and secure for ourselves the many privileges that they will bring. CONNECTICUT.

The Dung Heap.

The manure pile has been called, and not without good reason, the "Fountainhead of Benediction." Good farming in an old country (and we are not sure but in a new one also), begins with a strict

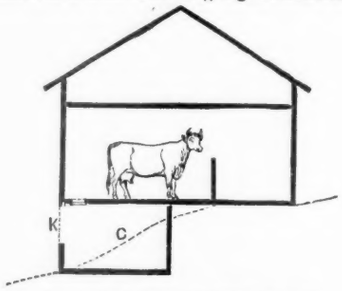


Fig. 1.—STABLE WITH MANURE CELLAR.

economy at the manure heap, and the liquid fertilizing elements that come from the farm animals. There are two distinct methods of saving this manure, namely, the dry and the wet way. In the former, absorbents, as dry earth, leaves, etc., are employed; in the latter, all the liquid is received in tanks, and applied to the land in that form. If the dry or absorbent method is adopted, it is best to locate the stable on a side hill, that a manure cellar may be secured at little cost of excavation. Figure 1 shows a diagram of a stable with a manure cellar, *C*, under the stable, provided with a door, *K*, for the removal of the manure. The floor of the stable should be of plank, with a gutter behind, and a trap door for passing the manure to the cellar

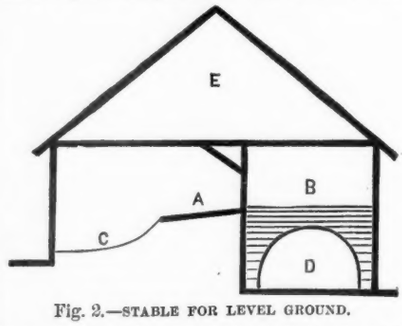


Fig. 2.—STABLE FOR LEVEL GROUND.

below. A diagram of a stable for level ground is shown in figure 2. The cow stands upon the slanting floor, *A*, with a depression, *C*, behind for the accumulation of the manure. This portion, as well as the floor under the cow, should be finished in cement. A passage for distributing food is at *B*, with a root cellar, *D*, below. There is a loft, *E*, above, for the storage of hay. Such a stable is especially designed for the keeping of one cow.

Irrigation in Shadtown.

BY TIMOTHY BUNKER, ESQ.

MR. EDITOR.—Since my experiment in "the irritation of the land," twenty years ago, on the Horse Pond lot, the physic has been working slowly, but quite surely, in all the neighborhood. It took Jake Frink a great while to understand the philosophy of draining at the bottom, and pouring water on top, and he does not fairly understand it now. He was wont to put the case in this style:

"Ye see, Squire Bunker, it is no kind o' use to pour so much water on to the top of the land, that's what's the matter with half the pastering I've got. It has too much water already. Jest look at the back part of my cow paster. It's covered with water all the spring, and skunk cabbage, poke root, and brakes grow like weeds all through the summer, but grass is mighty skase. Ef ye sow grass seed on't, it don't seem to do any kind of good. It gets killed in the winter, or choked out by the weeds. A feller has to be mighty smart with the bush scythe to keep down the hardhack. the alders, the wild roses, maples, and elms that keep springing up. 'Taint much use to be fightin' etarnally with the nateral bent of the sile. Some sile was made to grow hardhack and skunk cabbage, and it's agin nater for it to produce clover and red top. I can see that there's some sense in draining off water from such land, but when you come to pouring on more water on top, it seems to be making a bad matter worse."

But Jake did not apply his sense to his cow pasture, did not dig any ditches to draw off the surface water, and it has run largely to brush. But there was the living argument of the Horse Pond lot, with drains at the bottom and irrigation at the top, which contradicted his philosophy and kept him in a stew. His neighbors who attend the Farmer's Club, and take the *American Agriculturist*, had more faith and believed facts, if they could not explain them. Three tons to the acre was worth looking at and striving after, whether they could understand it or not. They began to look about for small streams upon their farms, that could be turned out of their course upon the neighboring upland. Small ventures were successful. Grass sprung up in the track of the water, earlier in the spring, was more abundant in the summer, and lingered longer in the fall, and was sometimes green at Christmas. There was no mistaking the fact. Irrigation often came up in the Club. The irrigation ditches multiplied. Idle streams were utilized. Stunted, gravelly pastures grew green, and the sod thickened, meadows yielded more hay. Stacks multiplied, the barns had to be enlarged, and many farms increased their stock. Irrigation was a success, and Tim Bunker had carried his pint, according to the prophecy of Seth Twiggs.

This summer I was over in Shadtown, to visit the farm of Solomon Wise. It consists of 225 acres of land, of average quality with the farms in the neighborhood. It has been the homestead of the family for three generations at least. Here Solomon's father lived, an enterprising farmer in his time, and did a large business in raising mules, and in trading them off for the West India market. Some fifty years ago, or more, he bought a celebrated Jack, and greatly increased the size of his mules, for which there was then a lively demand. The beginning of the system of irrigation that prevails upon this farm dates back to the time of his grandfather, a hundred years ago or more. Any good farmer, in riding by, would notice the exceptional greenness and fertility of this farm. This is owing mainly to the free use of water for a hundred years or more upon about 40 acres of the farm. The system of irrigation is of the simplest and most inexpensive kind, just such as any skillful farmer could make for himself, without the aid of stone mason or engineer. Near the north end of the farm a small trout brook comes in, never big enough for a mill stream, and, in summer, dwindling away to a mere rill. It is fed by springs, and in these springs the trout survive through the heats of summer. This brook is dammed near the spot where it enters the farm, with a slight bank of earth and stone. No effort has been made to accumulate water in a reservoir, though it could be done at a small expense. The brook rises in a swamp a mile or two above, and the basin embraces several thousand acres, which would collect a large supply of water, if it was husbanded. Only a part of the natural flow of the water has been turned out of its channel. The irrigating ditches, of which there are several taken from the main stream, are small and narrow, and have a very slight fall. They could be made very rapidly with a plow and ox-shovel. The forty acres put under water slopes gently to the south and east. The water is taken out of these irrigating ditches in slight rills, and passed over the meadow as evenly as possible. Any surplus water falls into the ditch below, or is returned to the brook. The distance for which the water is diverted from its natural channel is less than a quarter of a mile. The water is kept flowing summer and winter, and the winter flowage carries quite as much fertilizing matter as that of summer, and perhaps more. The refuse vegetable matter, gathered in the swamp above, floating leaves, wash of roads and brook channel, is carried down to these meadows. The water is often discolored in heavy rains, and even that which seems to be pure, carries more or less sediment with it. The liquid manure may be very thin, but the fact is well established that, wherever water runs over a well-drained soil, grass springs up in greater luxuriance. The purest spring water makes grass wherever it flows. While Solomon Wise sleeps, in summer and winter, this brook is making money for him, as it did for his father. The only expense to him is the slight labor of keeping the ditches clear, and of regulating the flow of the water. The soil is a gravelly loam, and slopes so much that there is little chance of stagnant water. In the opinion of Mr. Wise, the crop of grass is doubled by the irrigation alone.

There are several advantages of this system of irrigation besides the large increase of the grass crop. All these forty acres of meadow can be kept perpetually in grass, which is probably the most profitable crop upon the farms of New England. There need be no more plowing, no more tillage crops upon these acres. The sod may thicken from generation to generation, and produce that best of all forage, a thick, fine hay, made from a mixture of grasses grown upon an old sod. Then top-dressing, when it is applied, can be turned to the best advantage. The manure is carried down immediately to the roots of grasses by the large supply of water upon the surface. There is no loss from evaporation. The soil is kept up to a production of nearly two tons of hay to the acre, without any top-dressing. Upon this the calculation is based of the value of irrigation upon this farm. We suppose the natural production of the land to be not over a ton to the acre. A ton to the acre would be a fair estimate of the hay made by the irrigation. Hay sells in the neighboring city markets at from fifteen to twenty dollars a ton, depending somewhat on the season, and the quality. If we call the hay ten dollars a ton standing, it would give $400 as the annual dividend declared by the brook. The investment is about as secure as Government bonds, which pay 4 per cent nearly. The income is about the same as $10,000 in United States Stocks. Not every farm has the facilities of this for irrigation, but many have small streams running to waste that might be utilized at small expense, and made to pay good dividends. Let us look after them.

Hookertown, Ct., Nov. 1, 1880. } Yours to command, TIMOTHY BUNKER, Esq.

Accumulation of Manure in Stables.—A large mass of dung, unless frozen or kept near the freezing point, will undergo decomposition, and gives off, besides steam, ammonia, and other gases. These tend to soften and injure the hoofs of animals, and especially horses, that may be forced to stand continuously upon the accumulation of dung. These gases cause inflammation of the eyes, and injure the general health, interfere with the digestion, and reduce the vigor of the animal. There should be no mass of manure in any stable where horses are kept. A clean floor and pure air are requisites for the best health of the animals.

The Rib-Grass, or English Plantain.

Among the plants recently sent in for naming and information upon its fodder value is the Rib-grass (*Plantago lanceolata*). The letter accompanying the plants stated, the "new comer must have been introduced in the clover seed, as it first appeared upon the farm in the clover field." This is probably true, as this weed is most commonly carried into the newer settled portions of our country in clover seed. The seed of the Rib-grass and Clover are so nearly alike in size and color that their separation is effected with difficulty, and the presence of the weed seed is not noticed without more than ordinary inspection. By the aid of a hand-lens or pocket magnifier, the differences are shown at once.

RIB-GRASS, OR ENGLISH PLANTAIN.

The Clover seed is in shape much like a small bean, and alike on both sides, while the Rib-grass seed is convex on one side, and concave on the other. The differences are shown in the seeds in the upper part of the engraving, those on the right being those of the common Red Clover, with one seed considerably enlarged, and on the left those of the Rib-grass. The Rib-grass belongs to the same genus as the Common Plantain, so frequently found about our door-yards, but differs from it in growing to a greater hight, the leaves being long and slender, and the long flower stalk bearing a comparatively short spike or head of inconspicuous flowers.

The engraving is a much reduced one of a Rib-grass plant with its strong perennial root, and will be quickly recognized by many farmers, especially in the older parts of our country. This Rib-grass cannot be classed among the worst of weeds; in fact, it has been frequently sown for pasturage; it is eaten by nearly all kinds of farm stock, especially sheep. It is so inferior in quality and productiveness to many other forage plants, that its chief harm is in occupying the soil to the exclusion of better plants. Great care should be taken to sow only pure seed—inspect all clover and other seed coming from older parts of the country. The plants may be choked out by a heavy growth of clover and other valuable crops.

A Country House, Costing $2,200.

BY S. B. REED, ARCHITECT.

These plans are prepared for a convenient and comfortable dwelling, especially adapted to the requirements of farmers.....**Exterior** (fig. 1).—

Fig. 1.—FRONT ELEVATION OF THE HOUSE.

The front has a breadth of 38½ feet. The foundations show two feet above the ground. An additional elevation of the whole building can be given by raising the ground a foot or more immediately surrounding the building. The outlines and projections are sufficiently diversified and angular to comport with rural surroundings. The details of the exterior finish are simple in design, and in all cases arranged to serve some practical purpose. ....**Cellar.**—For want of space the cellar plans are omitted. Provision is made in the estimate, however, for a cellar extending under the entire building, with stone walls six and a half feet high, and having five small windows, an outside entrance, and stairs leading to the work-room above..... **First Story** (fig. 2).—Hight of ceiling in main house, ten feet; in wing, eight feet eight inches. A hall, parlor, living-room, bedroom, work-room, pantry and three closets, are embraced in the divisions of this story. The front entrance is from a pleasant piazza to the main hall, and from it each of the principal apartments of the first story are entered. This hall also contains the main flight of

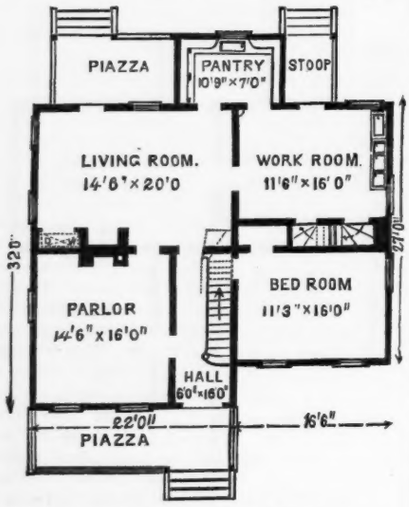


Fig. 2.—PLAN OF FIRST STORY.

stairs leading to the second story. The space under the stairs is left open far enough to allow for a passage to the bedroom. The Parlor is of fair size, well lighted, and contains a marble mantel. The Living-room is the most spacious apartment in the house, intended as the common gathering place of the family. Its interior arrangement is partially shown in figure 4, where views of one side and both of its ends are given. The side not shown has doors opening from the rear piazza and pantry, with a window between giving views to the rear. A large range, with elevated oven, is set in the fireplace, with a shelf above. The space between the chimney and end wall at the right, is filled out flush with the face of the chimney breast, and furnished with a fuel box below, and shelving with glass doors above. The fuel-box has capacity for a barrel of coal, and is hung to balance weights, and operates as a dumb-waiter, filled in the cellar and runs up to where its contents may be easily reached, and passed to the range as required. An opening is made through the hearth beneath the range, through which all the ashes fall into an ash pit, formed in the foundation of the chimney. By these arrangements it will be seen much of the

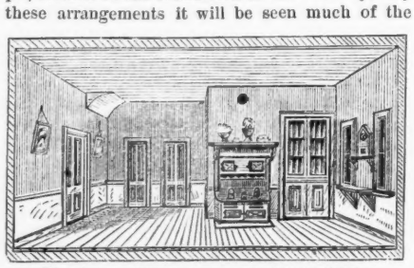


Fig. 4.—INTERIOR OF THE LIVING-ROOM.

heavy work is saved and the scattering of coal dust and ashes prevented. A ventilating register is placed in the chimney above the range, near the ceiling, to draw off the heated air and steam constantly arising from the range when in use. At the right-hand end of the room are two windows giving views to the side. Between these windows an ironing board is placed, and being hung with hinges, may be let down so as to occupy but little space when not in use. Above the latter a clock and lamp shelf is placed on small brackets of scroll work. The right-hand door opens to the parlor or sitting-room; the one next to it leads to the main hall, and the third in the center of the left-hand end opens to the work-room. The Work-room is designed as a sort of kitchen, where the coarsest work is done. It has two windows, and doors opening from the outside, a stoop, pantry, kitchen, and stairs from the cellar and the second story. This work-room contains a pump, sink, and three stationary wash tubs. The Bedroom is pleasantly situated with outlooks to the front, and is sufficiently removed from the routine and noise of the general housework to insure its being quiet at all times. A person having many official or professional calls, requiring an office, might appropriate this room to that purpose, by simply changing one of the windows to a door or outside entrance. The Pantry is of good dimensions, and conveniently arranged as shown in figure 5. It is entered from the dining-room and work-room, and is lighted by a full-sized window. A wide plank extends around three of its sides, as a work-shelf, with a wash-tray inserted opposite the window. The space under this shelf is occupied by closets and drawers on two sides, the balance being left open for barrels, etc. Above are shelves, placed at convenient distance from each other, and inclosed on one side with sash doors....**Second Story** (fig. 3)—Hight of ceilings in main part, eight feet, and in the wing, 4 to 8 feet. There are five sleeping apartments, five closets, a bath-room, and two small halls in this story. The platform near the head of the main stairs is on a level with the wing floor.

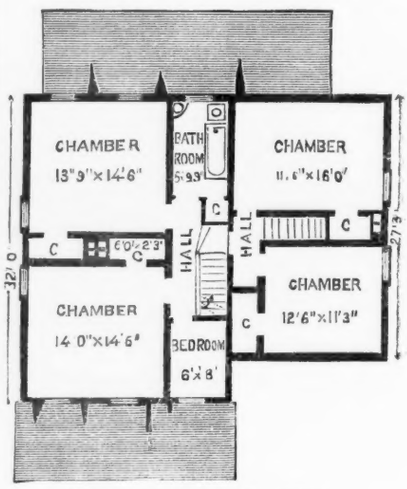


Fig. 3.—PLAN OF SECOND STORY.

The stairs to the attic are placed over the main flight.....The following **Estimate** indicates the character of the work, and the cost of materials:

80 yards Excavation, at 25c. per yard		$ 20 00
1,350 feet Stone Work (complete) at 8c. per foot		108 00
4,000 Brick in chimneys (complete) at $12 per M		48 00
850 yards Plastering (complete) at 25c. per yard		212 50
6,500 ft. Timber, at $15 per M		97 50
Sills 4x8 in. 170 ft. long.	Ridges 3x8 in. 51 ft. long.	
Girders 4x8 in. 67 ft. long.	30 Beams 3x8 in. 22 ft. long.	
6 Posts 4x7 in. 21 ft. long.	26 Beams 3x8 in. 17 ft. long.	
3 Posts 4x6 in. 13 ft. long.	16 Beams 3x7 in. 22 ft. long.	
Ties 4x6 in. 275 ft. long.	34 Rafters 3x5 in. 18 ft. long.	
Plates 4x6 in. 100 ft. long.	18 Rafters 3x5 in. 20 ft. long.	
V'nda Timb'rs 3x8 in. 200 ft. l'g.		
150 Joists, 3x4x13 at 15c. each		22 50
360 Wall Strips, 2x4x13 at 12c. each		36 00
186 Siding, at 28c. each		52 08
Cornice materials		30 00
500 Shingling Lath, at 6c. each		30 00
78 bunches Shingles, at $1.25 each		97 50
250 ft. Tin, Valleys, Gutters and leaders, at 8c. per ft.		20 00
319 Flooring (inside), 9½ in. wide, at 28c. each		89 32
80 Flooring (outside), 4½ in. wide, at 15c. each		12 00
5 Cellar Windows, at $3 each complete		15 00
24 plain Windows, at $7 each complete		168 00
Veranda finish, $60; Stairs, $60; Mantels, $50		170 00
28 Doors (complete) at $8 each		224 00
Closet finish, $30; Plumbing, $150; Painting, $150		350 00
Carpenters' labor, not included above		360 00
Carting, $30; Incidentals, $67.60		97 60
Total		$2,200 00

Shade Trees for School-Houses.—Not one in ten of our country school-houses is shaded by a single tree. Indeed, a school-house may usually be recognized by its bleak appearance, and the entire lack of shrubs and flowers about the grounds. If bought, the trees would cost only a small

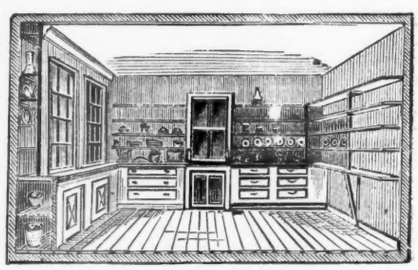
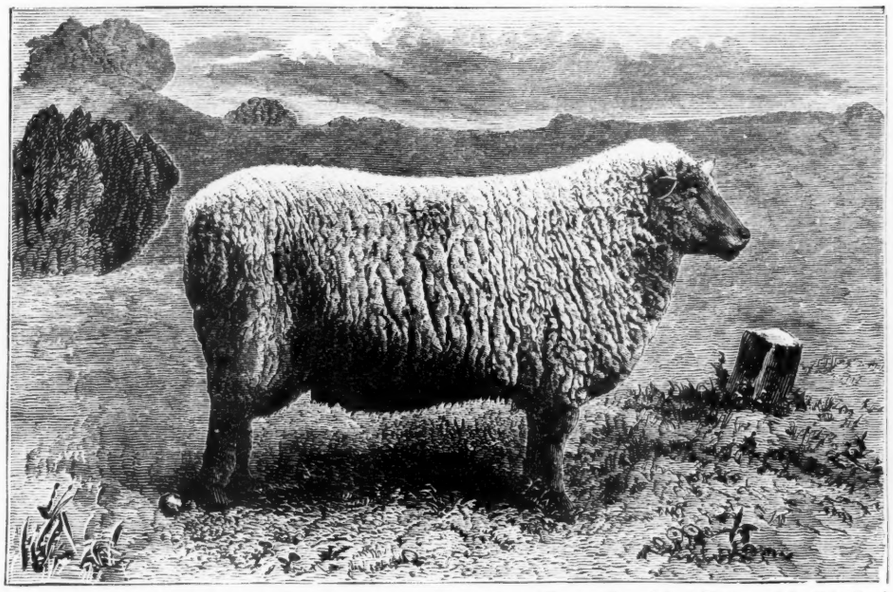


Fig. 5.—ARRANGEMENT OF THE PANTRY.

amount, but in most cases there need be no outlay of money, as native trees may be had for the digging. It would be easy for a teacher to have a tree-planting "bee" on a Saturday, when the older boys would gladly volunteer to perform a task which would add greatly to the cheerful appearance of the school-house and its surroundings.

The Southdown Ram, "Stalwart."

The accompanying portrait is of "Stalwart," an excellent Southdown ram, bred by Henry Webb, Esq., of Streetley Hall, Cambridgeshire, England, and imported by Mr. Samuel J. Sharpless, of Philadelphia, to lead the flock at "Lenape Farm," Mr. Sharpless' country seat, in Chester County, a few miles from Philadelphia. This flock consists of forty breeding ewes and their natural increase. It is, we believe, pre-eminently a Webb flock, the progenitors of it having been bred from rams imported from the late Jonas Webb of Babraham, the father of the breeder of "Stalwart." They are excellent sheep, of great substance, well wooled, and of good constitution. We are glad to learn from Mr. Sharpless that there has been an unusual demand for rams. Our readers knows our high opinion of the breed. It exhibits ovine proportions in extraordinary perfection, and where quality of mutton rather than simple weight is an object, no breed is more attractive to the general sheep-raiser. The animals are well-formed, economical feeders and mutton-producers, making excellent early lambs, and yielding fair fleeces of medium wool. The Southdowns have not black, but brownish gray faces and legs, which are bare to the knees and hocks. They are very small-boned, with little offal, broad in the best parts, rump, and hams, loin and back; low in the twist; deep in the brisket; square and level throughout. In fact, as blocky as a Shorthorn, and a most beautiful and useful breed, the mutton uniformly bringing the highest price in market. It is not a mere matter of fancy which leads buyers to prefer Southdown mutton. It is juicier, higher flavored, more like beef, and yet having a full, rich mutton flavor, free from woolliness, and the meat is veined and marbled with fat. There is a greater proportion of lean to fat in well-fatted animals than in most other breeds. The favor in which this breed is held is noticeable from the fact that the gray pates and legs are always left upon the carcasses when dressed for market and hanging in the butchers' stalls, so that connoisseurs may recognize their favorite breed. Mutton of the closely allied breeds Shropshire and Hampshiredowns is generally passed off for Southdown in the market, but the legs and faces of these breeds are of a much darker color.

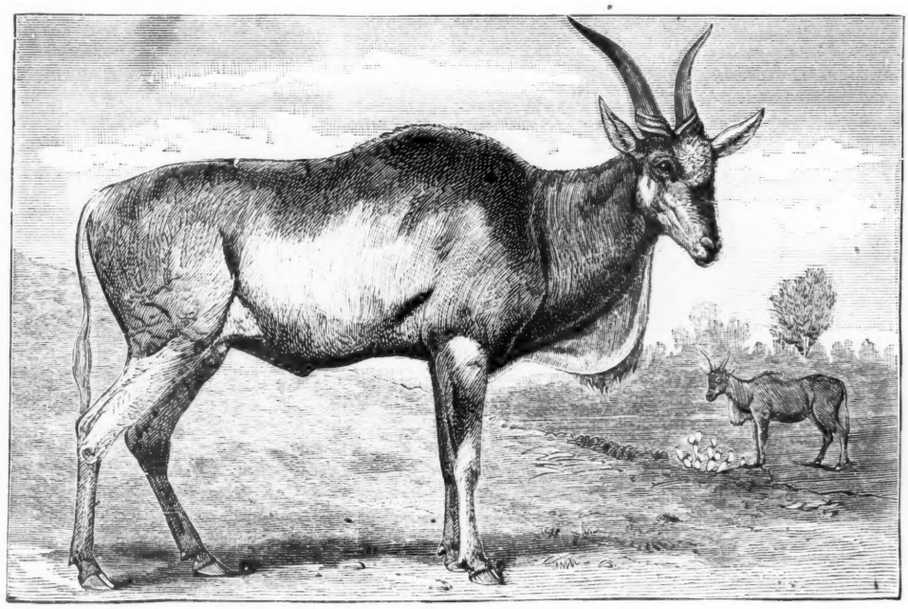


THE SOUTHDOWN RAM "STALWART."—OWNED BY S. J. SHARPLESS.—(*From a Copyrighted Photograph by Schreiber.*)

Variations in Indian Corn.—The leading grain crops present excellent illustrations of the modifying influence of climate; but none better than the Indian Corn. This plant has a wide geographical range, and the time for reaping the crop varies greatly. In its extreme northern range in North America, but two to two and a half months are required for its development, while at the South as many as six months are required. Heller says the time of reaping varies from "seven months to six weeks." Aside from the period of growth, the appearance of the crop varies greatly; only the small varieties are grown at the North, while in the warm climate of the South the stalks are large, tall, and "the ears frequently higher than a man can reach." One of the most interesting features in a collection of corn, made by Professor Miles to illustrate the varieties produced by climate, is the relative size of the cob. "At the North, the cob, as a rule, is larger in proportion than in the southern varieties, or in apparently the same varieties grown in the Middle States. At the North, the flint varieties are exclusively grown, while at the South they are entirely replaced by the dent varieties. The smallest, well-developed ear in the collection weighs but half an ounce, while the largest ear turns the scale at one pound and eight and a half ounces." This is a wide range in the size of ears of corn.

The Eland or Impoofo.

The colonists of the Cape of Good Hope have applied the name Impoofo to a large animal of the Antelope group of ruminants, found a native in that region. It is also called Eland, and is most commonly known by that name in the various countries to which the *Oreas canna* has been exported. The Eland is the largest of the South African antelopes, an adult bull measuring nearly six feet in hight at the shoulders, with a length of about ten feet from the nose to the base of the tail. In weight the Eland ranges from seven to ten hundred pounds. The general color upon the back and sides is a grayish yellow, with purplish shades shining through. The lower parts are cream colored, while the face is brownish red with a white chin, and a slight brownish mane. The tail is brownish red, and the dewlap yellowish brown pencilled with brownish red. The horns are nearly three feet long and slope slightly back from the crown, thick at the base, near which they take two spiral turns. The female is much more delicate and elegant in figure than the male, and is of a pale sienna color. When young and not over-fed the Eland is not easily overtaken by the Cape horse. The flesh is peculiarly excellent and is highly appreciated in South Africa where the flesh of most animals is tough. The hide is much prized for leather. Like other antelopes the Eland seems to get along without water, frequenting the desert localities in herds of a hundred or more, far from rivers and streams, and live there for months without drinking. The Eland has been introduced into England, where it is grown to some extent. The first one killed for the table was in 1859—a five-year old, weighing 1,176 pounds, and was described as "huge as a Shorthorn, but with bones not half the size." The texture of the meat resembles beef, with a venison flavor, and possesses a fineness and delicacy that places it high in the list of nutritious foods. With us the Eland is only a zoological curiosity, but in its native home it is a handsome wild animal of no small importance as a source of food. There is a striped variety of the Eland, but it is rare. The skins of these animals are considered trophies of success among the hunters, and therefore held in high esteem by them. The engraving is made from a copyrighted, instantaneous photograph, sent us by Messrs. Schreiber & Sons, of Philadelphia.



THE ELAND OR IMPOOFO OF THE CAPE OF GOOD HOPE.

Among the Farmers.—No. 59.

BY ONE OF THEM.

About "Rockeries" or "Rockwork."

There is something distressing to me about what are called "rockeries" or "rockwork." I mean those heaps of stone, and the sham grottoes which are so much admired by some. They either look like stone piles which have been "tidied up" a little, and made to support some trailing vines, bunches of houseleek, or stone-crop—or they look like a great effort to do something which turns out a lamentable failure. I have seen now and then an artificial bit of rockwork in a corner, well filled in with earth, half covered with creepers, and shaded by some overhanging tree, where ferns and other shade-loving plants seemed to enjoy the moist cool stones and their retired life, which I rather liked

Fig. 1.—FOUNDATION OF ROCKWORK.

A Rockwork Well-curb.

Our old stone house and its surroundings are so rustic, that when we replaced the ancient well-sweep with a modern pump several years ago, there seemed something incongruous about it. We had one pump in the house drawing water through a pipe 80 feet long, but raising it only 12, which was really all the pump we needed, except when we wanted to use the garden hose. So as the platform needed renewing, and we found that the upper stones of the well had been disarranged by the frost, we determined upon a change, and a return to first principles. The well is only about ten feet deep, and is several feet back from the bank which drops off suddenly towards the meadow. I dug out the ground around the well, had the top stoned up to the level of the ground, laid in cement, and a grouting of cement and broken stones filled in all around, making this upper part of the stoning of the well a solid wall, compact as one stone, two ft. wide and high. This foundation is shown in figure 1, which is a perpendicular section of the well.

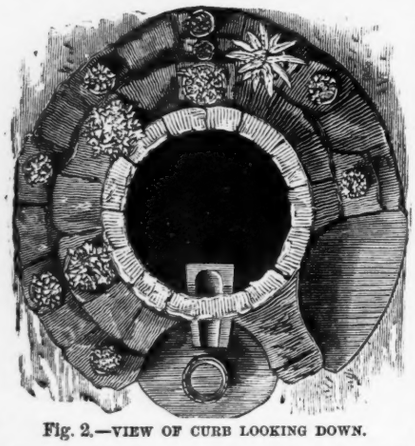


Fig. 2.—VIEW OF CURB LOOKING DOWN.

For the curb proper we used angular stones of all sizes, the largest as big as a man could conveniently handle, and laid them up with some pains not to make a uniform wall, filling every crevice with cement, and making niches for pots of flowers, and flat projecting stones for the same purpose, to hold the pots. The curb was drawn in towards the top, and at the hight of 2½ feet was finished in a flat surface, no where less than six inches wide, and every seam "pointed," as seen in figure 2, which is a view looking perpendicularly downward.

To provide a place to stand when drawing the water, to set the water-pail, and a spout, two flat stones were laid a little above the level of the ground, and semi-circular places left as the wall was built. At the proper hight for the spout, a hewed stone was laid in. When the cement had set, a stone-chisel dressed the standing and the pail places. This dressed stone appears in strong contrast to the rough work all around, and shows evidence of design in the whole. (See figure 3.) In the flat stone supporting the pail we chiseled a basin smaller than the pail, so that it stands firmly. It holds about two quarts of water, and hens, chickens, dogs, and cats, come constantly to drink.

In its summer dress the well-curb—we call it the *old* well-curb now, looks very well. It is a place where stand a number of house-plants, which remain in the tubs or pots all summer, such as century plants, cactuses, oxalis, the little striped tradescantia, and other such-like things. English ivy has been planted all around, and so has the little pale-green *sedum*, commonly called stone-crop. The ivy is protected at the roots, so that in a severe winter it dies down, but the shoots clamber up to the very edge before midsummer, and the dark-green leaves contrast beautifully with the bright yellowish-

Fig. 3.—SHOWING STANDING PLACE IN CURB.

green of the stone-crop. Besides, there is on one side a bed of gay bedding plants: horseshoe geraniums, asters, and marigolds; on the shady side a bed of ferns, and on the side of the spout, which is south, a bed of roses receives all the overflow of the well, as also many a bucketful of water which is drawn on purpose to dash over it.

The Old Well-sweep.

When a well-sweep and bucket at a well, 12 to 20 feet deep are properly balanced, and well set and arranged, which it is easy to do, they form, in my opinion, the best water drawing apparatus that has ever been devised. The bucket in our well is so balanced that a child of eight years can draw a bucket of water, and a grown person can draw water easily with one hand—and very rapidly. The post or crotch is of red cedar, which is lasting, and has a rustic look. The sweep is of chestnut, which dries very light, is stiff, runs straight, and stands the weather a long time without paint; and the pole is of pine—yellow pine is best, but it must be well seasoned, or it will be pitchy in hot weather for some time. White oak or ash are both good if free from knots, straight, and straight-grained. The sweep and the stone-curb are shown in fig. 4.

On a still summer night we can hear the rattle and clatter of chain pumps, the squeak of the patent rig, with the self-filling and dumping bucket, in different directions, and we look with dread upon the modern patent well-curb—and the more we know about *them*, the better we are pleased with our silent, picturesque, old-fashioned, efficient well-sweep, with its rockwork curb—beautiful even in winter, and always attractive from its cleanliness, and the absolute exclusion of snakes, mice, and toads, which we used to fish up dead, and alive.

An Adjustable Saw-buck.

Those of us who run small farms near the city change "help" too often for our own good. But we may pick up a good many good ideas from the ways men of different nationalities have of doing things. A Danish man, while working for us, made

Fig. 4.—THE OLD WELL-SWEEP.

a pair of saw-bucks, to be used singly or together, thus adapted to sticks of any length. They have been in use for several years, and are very simply made, see figure 5. Two forked apple tree limbs were taken, and a two-inch hole bored at the proper angle through each; then sticks were thrust through from the lower side, each one with its mate forming a tripod, that always rests firmly upon the ground, while the upper end is a crotch to hold the wood. Both of these tripods together form an adjustable saw-buck which we find very convenient for cutting up stove wood, or for holding lumber and timber of any kind that we wish to saw.

The Reaper in the Field.

If we were all artists and were seeking the picturesque, then ruins in all their stages would be in order everywhere. The old tumbled down mill makes a fine subject for the painter, but it does not help to make our bread. A country may grow rich in subjects for the sketch book, and at the same time be a poor place for people to live. Ruins are expensive luxuries wherever they are found; but none more so than those that exist on many farms. The farmer that leaves his reaper in the field for the winter, with its four reel arms extended to the four winds of heaven, is doing something for the picturesque; is furnishing an object, which, when the snows of winter come, cannot but strike the eye of every passer-by. With practical persons the question, "Does it pay?" comes boldly to the front. If the machine costs $140, it will perhaps last five years with such treatment, or cost about $36 a year, while if carefully housed, it will last at least twice as long, and reckoning interest at 6 per cent, the yearly cost would be $22, or an expense of $14, for the sake of the rustic scenery, not to

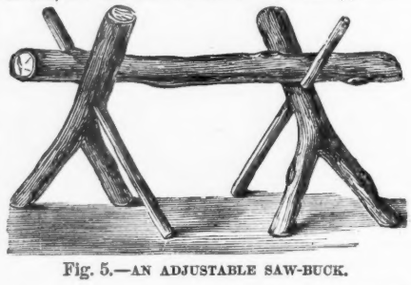


Fig. 5.—AN ADJUSTABLE SAW-BUCK.

mention the greater expense to run a rusty, warped, and decaying machine, than one in good trim. But it may be said, "It costs to build shelter," and so it does; but $14 is the interest on $234, and with the loss on the plows, drills, cultivators, carts, and other farm implements, a good tool house could be built, and more than half of the present loss from exposure be money put into the pocket, besides the appearance of the premises will be greatly improved.

Culverts under Roadways.

Culverts are arched passages for water under a roadway. Figure 1 is a bridge, though a very small one. Timbers are laid from one pier to the other, and planks are spiked upon them and cover the ends. The piers may be laid up of the roughest stone, and in the rudest way, or of nicely faced and angled stone, as shown in the engraving. This is the simplest and easiest way a brook can be taken under a road; but the planks rot and the timbers give out. There is danger of horses stepping through, and there is every now and then the necessity for new planks or timbers. Culverts are much better for all small streams, and last indefinitely, if well made. The simplest form is really about as much a bridge as a culvert; see figure 2. The same simple piers are spanned by rough, more or less flat stones, long enough to reach solidly from pier to pier. The cracks between them and any irregu-

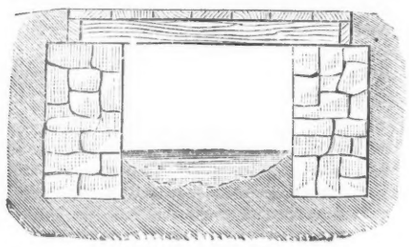


Fig. 1.—A SMALL BRIDGE.

larities are levelled off with broken stones, and the roadway carried over at any desired hight. When flat stones, large enough, cannot be procured conveniently, concrete culverts may be easily made. A very good form is shown in figure 3. Pier walls are laid exactly the width and half the hight, of lime or flour barrels, or even sugar hogsheads. Then a line of barrels is laid snugly end to end between the piers, and a concrete of cement, mortar, and gravel, is spread upon them to the depth of four to six inches, if the cement is very strong and good, or to a greater depth if it is not so good. In laying on the concrete, it is well to go along one side first, and to set small stones in the soft surface, which tend both to keep the cement in place until it sets, and to give solidity to it. This protection of stones is especially valuable upon the top in case the covering of earth or gravel forming

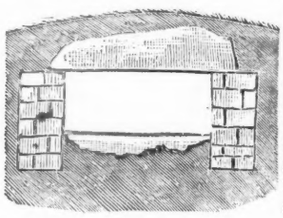


Fig. 2.—A SIMPLE CULVERT.

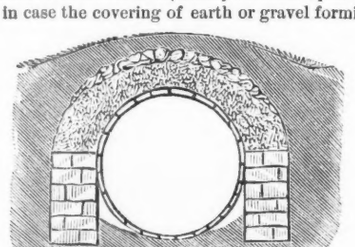


Fig. 3.—FORM OF CONCRETE CULVERT.

the road-bed is likely to be worn away. Figure 4 is a lengthways section of the crown of the arch, showing how the shape of the barrels causes a succession of depressions, which give an additional strength. This makes an excellent culvert. After

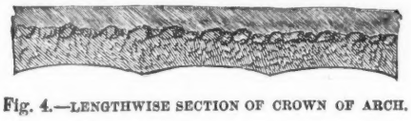


Fig. 4.—LENGTHWISE SECTION OF CROWN OF ARCH.

a week or two the barrels must be removed, for should a freshet occur, the pieces might break away, and form an obstruction which might do damage. The flatter an arch the weaker it is, and the material must be proportionately stronger or thicker. Figure 5 shows a flat arch, made by spanning between the piers with sticks of timber,

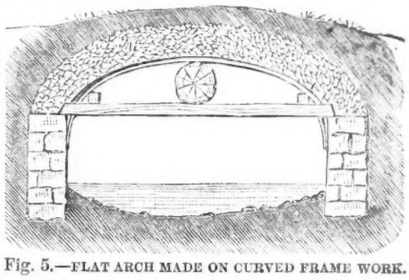


Fig. 5.—FLAT ARCH MADE ON CURVED FRAME WORK.

to hold a round log or other support of desired thickness—say ten inches or a foot. Round or split poles are sprung over this, and the ends brought into position by straight poles nailed or lashed to the timbers near the ends. The surface is made as nearly uniform as possible as to curvature, and covered with flags or leaves, so as to make a surface which will hold the cement. A coat of this should be applied at the outside along the piers, and then, as it grows stiff, farther and farther up. The whole arch should be covered with a coat two or three inches thick, left rough, and when this has hardened, the whole thickness of concrete is laid on as solidly and compactly as possible. If well made, it will form a lasting arch. The timbers may be sawed in two after a while and taken out; the log of course will fall, and the roughness of the under side will be no detriment to the usefulness of the structure.—Figure 6 is a similarly constructed arch, but not arched on the under

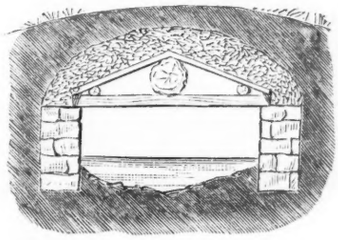


Fig. 6.—STRAIGHT-SIDED ARCHWAY.

side, where straight sticks are used in constructing a foundation upon which to lay the concrete.

Something about Soldering.

Milk pans, pails, and many other tin household utensils, will get leaky and need repairing. Bits of rag and splinters of wood, etc., give temporary amendment in certain cases; but the only permanent method is to use solder. A soldering "kit" consists of a soldering iron of copper, weighing about 12 ounces; a flat 10-inch file, rather coarse; a scraper, and a 3-square file, ground to three scraping edges for an inch from the point. A bottle of soldering fluid will also be required, and a little rosin and some sal-ammoniac. Last, and not least, a few sticks of solder. Directions for soldering: The "Iron" must first be *tinned*, that is, covered with a thin coat of solder. To do this, heat the Iron somewhat above the melting point of solder. File one side of the bevelled portion smooth, and touch it immediately with rosin and soldering fluid, and then with solder, and wipe smooth with a rag. File and "tin" the remaining portion. When done, the surface should be completely covered with solder. Another way is to heat the iron nearly to redness, and rub it upon the sal-ammoniac with solder in contact, when no filing will be necessary. This tinning must be repeated whenever the thin coating of solder is removed by over-heating of the Iron, which is quite likely to occur. Now to the work. Wherever it is desired to attach solder, the parts must be clean. If the surface is not already bright and clean, it must be made so by appropriate means. Here the scraper will generally be of use. Having scraped the surface, apply with a stick some of the soldering fluid, or, instead of soldering fluid, some rosin, to the parts to be soldered. Meanwhile the iron has been heating in the cook stove; not too hot, for then the solder is too fluid and you cannot pick up a portion with the point of the iron. Take the iron from the fire, wipe with a rag, or dip momentarily into a weak solution of sal-ammoniac. Touch the iron to the solder; if the heat is right, a small portion adheres, and is placed upon the spot where it will do the most good. (The tendency to use too much solder should be guarded against.) If the iron is not hot enough, warm it some more. The iron must remain in contact with the place where the solder is to stick until the surrounding parts are at the temperature of melted solder. With the above utensils and directions almost any person can mend a milk pan or ordinary utensil, though there would be much of soldering still to learn. Old tomato cans would be good to practice on until the art is acquired. D. S. L. [See Feb. number, p. 67.—ED.]

Living Posts for Wire-Fences.

Persons often inquire if living trees are not available as posts for wire fences. They certainly may be used, but there is great objection to fastening the wire *directly* to the trees. We give two engravings; figure 1, showing how it may and ought to be done, and figure 2 giving the result of fastening wire or ribbon fencing directly to the trees. The proper way is to nail on a white oak strip, and it is best to use green wood, for after oak becomes well seasoned and dry, it will be almost impossible to drive staples into it—to this the wire may be attached, and no injury will ordinarily be done to the tree. The growth of the tree may tend to deflect the fence a little from the true line, and in that case the strip may probably be started carefully and taken off free from the tree and nailed on again where desired. It might be worth while to saw off a portion of one end of the strip and only shift the top or bottom wire. That would of course be determined by the situation and appearance of the fence. If fastened directly to the trees, the bark soon closes over the wire and any shifting is impossible, without cutting into the trees, making ugly wounds, or cutting off the wires and leaving them in the trees, where, years hence, the pieces will be likely to be discovered by the woodcutter, and would try equally his own temper and that of his axe. Neither is it best to nail fence strips directly to trees when "living posts" are used for strip fence. It is much better to nail to perpendicular strips attached to trees.

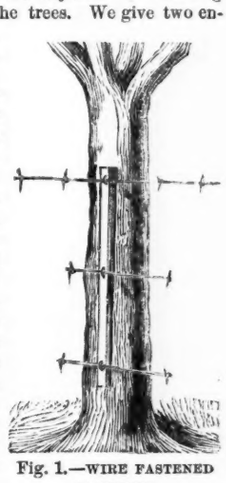


Fig. 1.—WIRE FASTENED TO STRIPS.

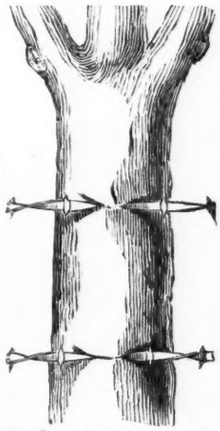


Fig. 2.—OVERGROWN WIRE.

Cure for a Baulky Horse.—We have cured incipient baulkiness by persistent gentleness, never overloading, always starting evenly, and easily, gradually increasing loads, and patting and praising the animal after a good pull. This resulted in a complete cure, whether it would cure a chronic case or not we cannot say, but it is worth trying.

Cow-Barn and Poultry-House.

In Major Alvord's admirable contribution to the little book lately issued on "Keeping One Cow," he gives, with very little comment, the plan of an excellent barn. It was at first a mere carriage-house and horse stable; then changed, by the addition of a chicken house, in a wing; finally it was raised, and a cellar or basement for roots, cow-stall, store-rooms for bedding, etc., calf-pens, etc., introduced under the main part, while under the wing is an enclosed shed and manure pit. The engravings are made with such detail, that it is easy to see the relations of things. The second or main floor above the basement is chiefly devoted to storage, although adapted to be used for a horse and carriage barn. In the wing upon this floor, the poultry have their quarters, above the manure pit. In the enclosed shed in the basement, very comfortable quarters might be provided for a pet porker. On the whole, it is a plan excellently adapted to the wants of a villager or surburban resident, who wants to keep an unpretentious family establishment—pony and phaeton, a cow, and some chickens in comfortable quarters, not to mention the pig.

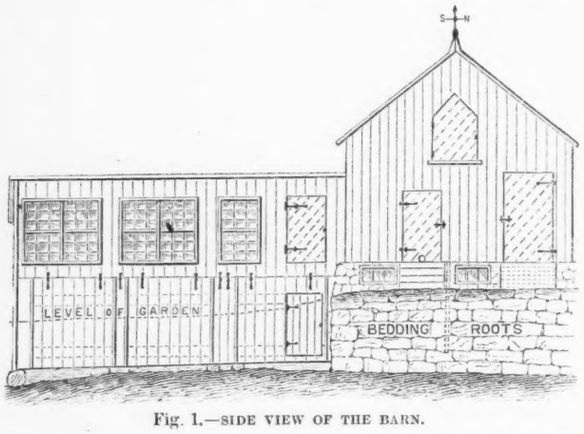


Fig. 1.—SIDE VIEW OF THE BARN.

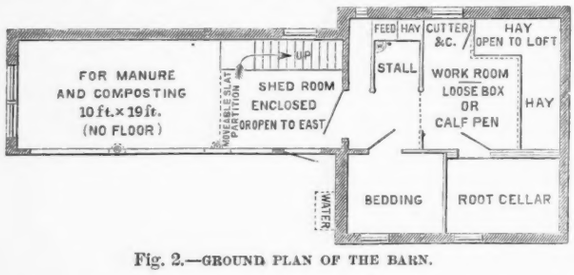


Fig. 2.—GROUND PLAN OF THE BARN.

A Cheap and Durable Cistern.

An abundance of rain water for family use, for the barn-yard, and for irrigation in the garden, is still a great desideratum in our rural districts. The great bar to this water supply is the anticipated expense. It costs money to excavate and line the sides of a cistern with brick and stone. Most farm houses have no provision for washing except well-water, drawn with the bucket, and this is often hard, and the yard and barn-cellar are without any water for stock. A cistern that will hold all the water that falls upon the house, or the barn, is within reach of every thrifty farmer, and will pay for itself every year in saving labor, and in the health and comfort of the family, and in the care of the farm stock. A neighbor of ours, who is a gardener as well as a farmer, built a cistern for his greenhouse last year, and liked it so well that he has built another this fall for his barn and garden. The first item of expense was the labor of excavating on the south side of the barn, where the frost does not penetrate very deep. The excavation is about ten feet deep, ten feet in diameter at the bottom, and twelve feet at the top. The soil is gravelly loam at the top, and compact gravel below. But sand, if it were compact enough not to cave, would answer just as well. The sides of the cistern are made as even as possible, and a wash of Portland cement is applied with a broom—to the bottom and sides. This dries very rapidly, and four or five coatings will make a perfectly tight and strong basin to hold all the water that will ever fall into it. The cost of the cement is very small, and the thin crust, backed by the solid subsoil, is just as good and durable as mason work of brick or stone.

For a covering he used chestnut timber of one foot in diameter, hewn upon one side, upon which chestnut plank two inches thick were laid. Two leaders conduct the water from the eaves of the barn into the cistern. A man-hole was left at the top large enough for the cleaning of the cistern, and for the insertion of the pump. The plank was covered with about two feet of earth, which is a sufficient protection against frost in this latitude. The cistern will hold 8,000 gallons of water, or more, and will furnish an abundant supply of water for stock, and for irrigation in ordinary seasons. The whole cost for labor, timber, and cement, was about fifteen dollars. Most farms will furnish the necessary labor and lumber, and the only money outlay would be for the Portland cement. This cement will harden under water, and become as solid as stone. It is entirely practicable for almost any farmer to build a cistern of a kind which has been described, and to have a good supply of water for his cattle during the winter. Build a cistern.

A Well, laid up with Cement Blocks.

Mr. James E. Dean, of Fishkill, sends us the following clear and concise description of his well, and how he made it. It may be of use to many.—"As in some other communities, we are troubled here with sand running in with the water between the stones and filling up our wells, and we are often annoyed by worms, toads, and other small animals getting in and fouling the water. To shut out all these, and also the impure surface water, I prepared a mold, figure 1, which consisted of a frame with wooden blocks for ends, sheet-iron sides, but without top or bottom. In this I made cement or concrete blocks, similar in shape to the fire-bricks which line cylinder stoves, see figure 2. These blocks are about one foot high, one foot long, and four inches thick, with a groove on one edge and a tongue on the other, and so curved that nine make a complete circle. The well was about three feet in internal diameter, and each course a foot in hight. The materials used were one part Portland cement and five parts creek gravel. The mold, figure 1, is placed for filling in a bottomless box or frame, figure 3, and wedged in place by the blocks, *A*, *A*, at each end. When I had enough of the blocks made, and they had hardened a few days, I commenced my excavation. At about ten feet water was reached, when I prepared a ring, wide enough for the blocks to rest upon. It was made of two thicknesses of inch boards, cut in segments and nailed so as to break joints. This I placed in the bottom, and commenced building, making the horizontal joints tight with cement, but leaving the perpendicular joints with no cement in them. When we had put on three courses, we dug inside and settled our hoops and cylinder, occasionally pumping out the water until we were about four feet below the water line, which just then was very low in consequence of the protracted drouth. Then we laid it up to and one foot above the surface, carefully filling in the sand on the outside, and put on our well-house, with its axle and drum, and everything was ready for work. The water tastes somewhat of cement, which will soon disappear, when I expect to have the best, as I now have the prettiest, well in this vicinity.

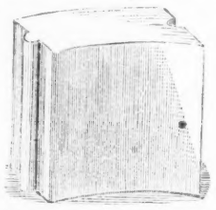


Fig. 2.—A CEMENT BLOCK.

I forgot to say that I put mortices in some of the blocks in each course, for toe-holes to assist in going up and down. To make these I put in a block against the inside iron when the mold is about half full, and tamp the material around it. The water will filter readily through blocks where the proportion of cement is not greater than one to five, though I left the vertical joints uncemented, to facilitate its entrance. If the blocks should not be used before they are six months old, one part cement to eight of gravel would doubtless answer. I sifted the gravel through an ordinary coal sieve, so as to take out the large pebbles, and so make smoother blocks. I would caution parties not to make the material too wet. It should be well mixed while dry, and then only dampened so as to be tamped into the mold, in the same way as moldings are treated at a foundry. A good man can easily make fifty blocks in ten hours, without any assistance. No doubt my arrangement for holding the mold together can be improved.

To give the iron sides of the mold the right shape, I sweep two concentric circles on a floor, and bend the sheet-iron pieces to coincide with each. I

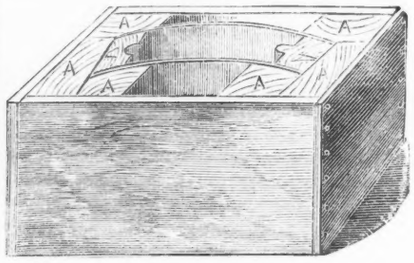


Fig. 3.—THE FRAME SUPPORTED IN A BOX.

then divide the inner circle into nine spaces, draw radiating lines from the center through two of these points, and so find where my end blocks go.

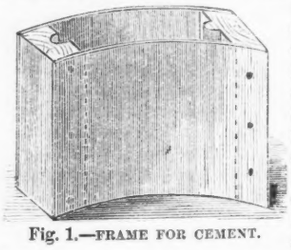
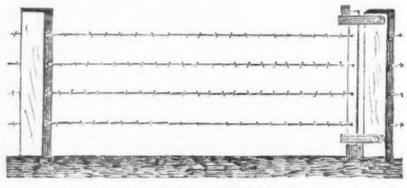


Fig. 1.—FRAME FOR CEMENT.

A Provisional Opening in a Wire Fence.—"J. B. C.," British Honduras, sends a method of making an opening in a wire fence, that will be of service in our own country, where this kind of fence



A WIRE-FENCE GATE.

is so largely used of late years: "Fasten the wires securely to the left-hand post; procure two clevises for the opposite post, and fasten them through the center of the post with bolts. Secure the wires to a false post, and have the bottom clevis stationary, and long enough to admit the false post, and stretch the bottom wire. The top clevis should be long enough to admit the false post, and also a wedge so as to thoroughly tighten the wires."

A Fodder Rack for Sheep.

Mr. J. B. Hawley, Hamden, N. Y., sends a very neatly made model of a Fodder Rack for sheep, and says, he has used this kind of Rack for thirteen years, and likes it better than any other that he has seen. It will take to pieces and fold in a very small space, a very important consideration. The compactness of the folded rack is evident from the very closely folded model. The bottom pieces, figure 1, are made of two-inch stuff. Two iron pins on each side of the top part hold the rack in position. Two of these bottom pieces are enough for a 12 or 14-foot rack—a much longer rack will need one in the middle. Figure 2 shows one of the end pieces, with three ¾-inch iron pins projecting to fit in holes that are bored in the center of the end of each of the three boards that make the bottom of the manger. One end of the rack is shown in figure 3. The top and bottom pieces should be two inches square of good timber; bore ¾-inch holes, 9 inches from center to center, and fit 24-inch rods in all the holes but the end ones. One side of the rack is shown in figure 4; its construction is the same as the ends, with the exception that the rods are not so close together, and the end rods are longer than the others and draw out so as to be used to hold the rack together. The bottom pieces and manger may be of undressed lumber, but the whole rack that stands on the manger should be of good timber, like oak or ash, carefully dressed and cornered so as not to catch the wool. The rack complete is shown in figure 5. In use, the sheep put their heads through the rack, and eat from the manger much as cows do in stanchions. Mr. H. is satisfied that this rack will pay the expense of making, in one winter, rather than feed on the ground, as most farmers do in his section.

Fig. 1.—THE BOTTOM PIECE.

Fig. 2.—END PIECE.

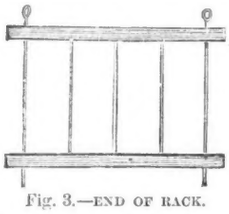


Fig. 3.—END OF RACK.

The Care of Sheep and Lambs at Yeaning.

It used to be considered a calamity to have lambs come in the winter or early spring. Three-fourths, at least, of all that were dropped before April died, and their carcasses were food for crows. The sheep took their chances in the same yard with cattle, and often had not even the shelter of a shed. This "slaughter of the innocents" was not strange, as they were dropped upon the frozen earth, and had little care of the flock-master. With suitable quarters, and care, it is not difficult to save winter lambs, and the advantages of an early start and an early market are so great, that many of the best sheep men, who cater for the butchers, plan to have the yeaning time commence as early as the middle of February. Even in the Northern States, to be successful with early lambs, it is essential that the sheep should have quarters by themselves. If left to run with other animals, they are exposed to many injuries, and not infrequently the lambs will be prematurely dropped, or still-born. The quarters should be in a sheltered position, with the full benefit of the sun. A large open shed facing to the south will do, or a barn cellar, if perfectly dry and kept well littered. One of the best flock-masters we know of has a barn about 40 by 20 for the accommodation of fifty sheep. He thinks it of a good deal of importance that the sheep have a board floor under them. This floor is kept well littered with straw. The sheep are fed in this barn, and kept in it at night, and during stormy and severe weather. There is a comfortable dry yard attached to the barn, and in this they have their liberty in mild, sunny weather. Another essential thing is the seclusion of the sheep at yeaning time, that the mothers may not be disturbed in their care for the lambs. A row of small pens upon one side of the barn, about four feet square, answers a very good purpose. The ewe should be kept in one of these pens for three or four days until the lamb has learned to nurse, and can follow the mother. The utmost vigilance is needed during the whole of the yeaning period. Six times a day is none too often to visit the flock, and look after the lambs. It should be the first thing in the morning, and the last thing at night, and in critical times, where many lambs are expected at the same time, it may be necessary to have a night watch and visit the fold every two hours. Ordinarily the ewe needs no assistance, and the more quiet she can be kept the better. Sometimes a little timely aid saves the life of both mother and lamb. Such ram lambs as are not wanted for service can be altered more safely when three or four days old than at a later period. Sheep want a portion of green succulent fodder during the winter. Nothing is better for this purpose than turnips.

Fig. 4.—ONE SIDE OF THE SHEEP RACK.

Barn-Yard Manure vs. Artificial Fertilizers.—Unless the special wants of any given soil are well understood, barn-yard manure is much more reliable than any special fertilizer. The manure, when well made in the yard, furnishes all the elements, that are or can be lacking in a soil, and in a very acceptable form. But the question may be asked: "How are we to know the special wants of our soil?" This must be answered by direct experiments; and in putting this question to the soil it will be necessary to follow much the same plan as that proposed by Prof. Atwater in the *American Agriculturist* for April last—a plan that many are now following with satisfactory results. It is only by similar, thoroughly conducted experiments that the special wants of any soil can be discovered, and when once known, the remedy in special fertilizers is comparatively easy. The great question is: What does the soil need? This answered, more than half of the work of securing good crops is done.

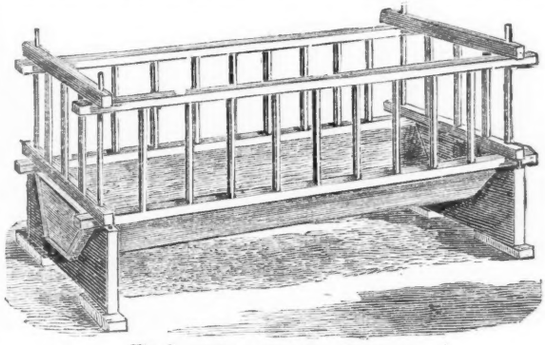


Fig. 5.—THE FEED RACK COMPLETE.

Handling Heavy Hogs at Butchering.

Mr. Geo. W. Bronson, Oneida Co., N. Y., sends a sketch and description of his method of handling heavy hogs. Mr. B. writes: "It may be of use to some of your subscribers who may be (as I am) too old to enjoy a heavy lift on a 'porker' of four or five hundred pounds. Having a lot of this kind to handle from year to year, I made the arrangement shown in figure 1. The hogs are scalded in a box, which is an improvement over the half hogshead or large kettle, as it takes less water and scalds the whole hog at once, thus avoiding much lifting that is necessary when only half of the hog is scalded at a time." A table for scraping is placed beside the scalding box, and a track is arranged beyond the table and overhead, with two pulleys fastened to the rafters above, and near the ends of the track. A rope passes, from the hog to be raised, over these pulleys and down to a windlass attached to the floor as shown in the larger engraving. Mr. B. describes the use of the arrangement as follows: "The hog is taken from the pen, driven to or near the door of the dressing room, stuck and kept as near as possible in the same spot. When dead, take the hook attached to the windlass, and use it as a hog-hook A man at the windlass soon brings the hog upon the plank at the end of the scalding box, where it rests until the water is ready, and is then put into the scalding box. When to be removed, the 'man at the wheel' soon lands the hog upon the table again. After being scraped, etc., the gambrel is put in place and the hook in the end of the rope placed near its middle, when it is hoisted up to the hook attached to the movable block. [The hook and sliding block is shown separate in fig. 2.—ED.] When the hog is finished off, the man turns the wheel, and the block with the 'porker' attached is moved along the track as far as it is necessary. The track is made of scantling, fastened to the joist above, leaving a space of two inches between for the passage of the hook which runs downward from the movable block. The blocks have a two-inch notch removed to keep them in place on the track. The size of the wheel-shaft is five inches; horse hay-fork rope and its pulleys will answer for the work above described."

Fig. 2.

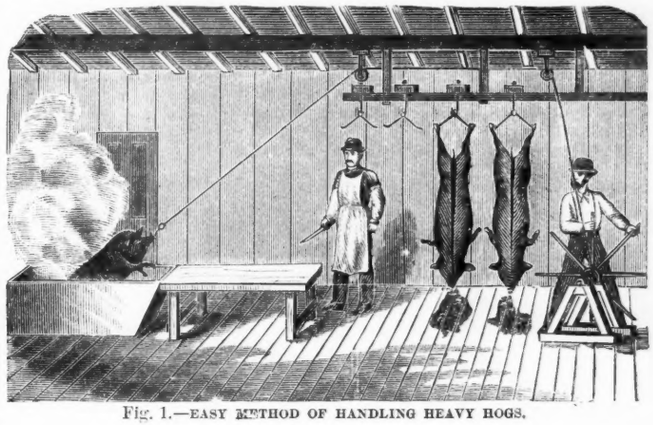


Fig. 1.—EASY METHOD OF HANDLING HEAVY HOGS.

Little Things of Great Moment.—It is a small matter to take the horses across the field for their water; it seems to cost nothing, yet if a farmer's time, or that of his hired man, is worth anything, it costs a great deal in the course of a year. It is a small matter to chop each day's wood upon the day it is used, and thus have it all fresh; but fifteen minutes in harvest time is worth more than in January; besides, there are vastly more economical methods of making fire wood than with an axe. It is a very little matter to tighten a loose nut, but it sometimes costs life and limb

not to do it. A pear tree here, and a peach tree there, cost so little that one is inclined to think they are of no account, but when the fruit is ripe they are appreciated. A single step from one room to another is "only one step," but the thought of a stairway made out of these steps during a life time, is enough to almost make a woman's back ache. Look well to the details, and see that the little things are right, for it pays in the end.

A Convenient Ash Box.

"W. M. V.," Glen Cove, L. I., sends a sketch and description of an Ash Box which he has had in use

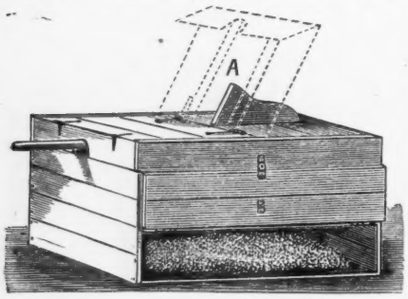


Fig. 1.—A CONVENIENT ASH BOX.

for a number of years. The Box can be made of cheap hemlock lumber, and of a size that the lumber at hand will cut without waste; seven feet in length by three feet in width, and four feet high, may answer in most circumstances. A lid, *A*, is provided occupying nearly one-half of the top, as shown in fig. 1, and also a side door, *B*, used for removing the ashes. Two strips of board are fastened within, and lengthwise of, the box, upon which the sifter or sieve rests as it is shaken, as shown in vertical view in fig. 2. The sieve, which is an ordinary one, costing perhaps twenty-five cents at the store, has a long handle fastened to it; with this the ash box and sifting apparatus is complete. The advantages claimed by Mr. V. for this ash box are: The ashes can be sifted without making any dust, as when the lid is closed the whole is confined within the box. The ashes and sieve are kept from exposure to storms, and the latter is always in place and ready for use. It dispenses with a disagreeable looking heap of ashes often found on exhibition the year round; and lastly it is cheaply and easily made. Any further description of the construction of the ash box or the method of working the sifter, is unnecessary. It may be added, however, that as the structure is of wood, care should be taken that there be no live coals among the ashes when they go to

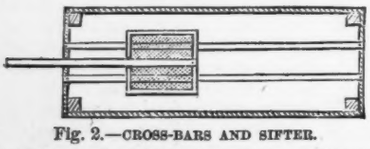


Fig. 2.—CROSS-BARS AND SIFTER.

the ash box. A coat of paint, or even whitewash, will add to the appearance of this useful and economical article and at a very trifling outlay.

Muck and Peat Pay.

The use of muck and peat pays abundantly, and we notice that the man who has once fairly experimented with these fertilizers in the compost heap rarely abandons them. They are soundly converted to the use of these absorbents, and every dry spell in summer and autumn finds them delving in the swamps and peat bogs. There is the fruit yard where we began using peat in the compost twenty years ago still fat and flourishing, and bearing abundance of the finest fruit every year. For ten years, peat, composted with stable manure, was applied without stint, and the roots have an abundant supply of food. There is the large farm and nursery of our neighbor that has been dosed with muck compost for twenty-five years, and he keeps straight on digging and composting as if it was the only way in which he could make his soil yield paying crops. No better nursery trees are raised in the State, and his orchards are models of clean, well-fed, productive trees. He has plenty of fruit when others fail. Tens of thousands of loads of muck have been incorporated with the soil, and the crops never fail from lack of nourishment. There are two brothers just beyond who follow fruit and truck farming, and have a yearly income of from fourteen to twenty thousand dollars a year from their two farms. We never fail to find, at this season of the year, a compost heap of enormous proportions close by their barns. The best farmers we know of who have the facilities, are using peat and muck largely, and are extending the use. This fact is about as good an advertisement of the value of these absorbents as could possibly be had. They are a good dressing for all light gravelly or sandy soils, without any amendments. They are most economically used probably for making compost heaps upon the fields that are to be broken up next spring. Any active green manure from the yards, stables, or the neighboring market town, are good for these heaps, in the proportion of one load of manure for four or five of the peat. The yard and stables should be abundantly supplied with them, and it is always time for more peat when the smell of ammonia is perceptible. Near the shore various kinds of sea-weed make an admirable compost with peat. Fish scrap is still better, either raw from the factory, or dried, and at least ten parts of peat to one of the scrap may be used to advantage. Oyster-shell lime, fresh from the kiln, makes an excellent compost with peat or muck. Wood ashes are still better, and those who live near villages are still able to procure these in considerable quantities. It matters little what agent is used to throw the heap into a ferment, and decompose the vegetable fibre. After twenty-five years of persistent use of muck and peat in the compost heap, we have abiding faith in their great value as fertilizers.

Trucks for Boats—Two Kinds.

"D. S. L.," Charlestown, Mass., has a boat which he keeps in a house a short distance from the bay,

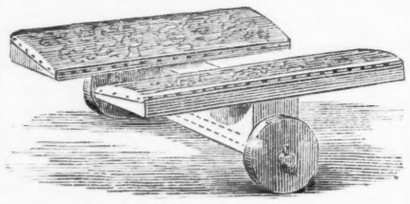


Fig. 1.—A TRUCK FOR A BOAT.

and employs a Truck for moving it from the storehouse to the water. This Truck is constructed as shown in fig. 1. The wheels are of maple, two inches thick and eight inches in diameter, united by an axle made of gas pipe, one foot in length. A piece of spruce, 4 by 4 inches square, rests upon the axle, to which the top pieces or "wings" are bolted. The wings are 3 by 4 inches square, built to approximately fit the boat, with a space left between them for the keel of the boat. The dimensions will of course vary, according to size of the boat. The wheels might be smaller, if the course to be run over is perfectly smooth, and larger if the roadway is rough. They should be quite near together so as to secure proper stability, and diminish as much as possible the tendency to twist around. The same gentleman sends another form of truck, which is very good when it is to be

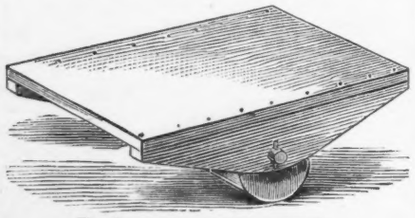


Fig. 2.—FLAT-TOP BOAT TRUCK.

used on smooth planking only. It consists of a board of a suitable size to give good support (12 by 18 inches) with a roller fixed beneath, something like a bread-board and rolling pin, as shown in fig. 2. With some such truck as this, or the one shown in fig. 1, a boat can be easily moved over any land that is reasonably smooth or other hard surface.

Another Small Barn.

"T. H. R., Jr.," Dayton, Ohio, having seen the "Plan for a Small Barn" in the September *Agriculturist*, page 349, sends a plan of his barn which

Fig. 1.—A SMALL BARN.

he has recently built. He thinks it preferable for a small place to the one given in September, "as it will cost less, being smaller and yet sufficiently roomy for two horses, or a horse and a cow and two vehicles, besides presenting a better appearance. It also obviates the necessity of going behind the horses when feeding, which is often desirable, as in families having no hired help the feeding is sometimes intrusted to the children." The outside appearance of the barn is shown in figure 1, and is certainly pleasing to the eye. The ground floor, figure 2, is 18 by 24 feet, 8 feet between joints. The carriage room, *C*, is 13 by 18 feet, with sliding doors 10 feet wide. The horse is led through the door *D*, from the carriage room to the stable. The box, *E*, containing food, connects by two "spouts" with grain bins in the loft. The hay "shoot" is shown at *S*, and is between the mangers. The harness closet, *H*, is placed under the stairway. A window, *W*, gives light to the feed room and the stalls. The loft, figure 3, is 6½ feet to the plates, and with a three-quarter pitch to the roof there is ample room for hay and straw. The barn is built of hemlock, sided with ½-inch dressed boards, 12 inches wide, and battened. It cost, complete and painted, $200.

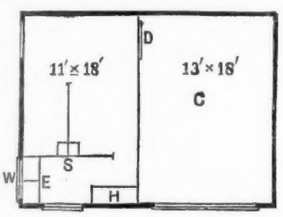


Fig. 2.—FLOOR PLAN OF BARN.

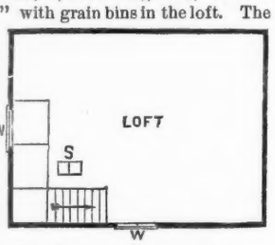


Fig. 3.—PLAN OF THE LOFT.

Dairy Farming consists of the feeding of cows for the production of the largest quantity of the richest milk, either for direct sale or partly for making butter and cheese. It takes the forms in summer of grazing on natural or artificial grasses, and housing in winter on hay and roots, or soiling near towns and cities where the food is grain refuse from the breweries and cut green fodder. The surplus stock of bull calves is sold for veal, while the best heifers are kept to maintain dairy stock. This is a very safe system of farming, there being immediate returns on a small or moderate capital invested. The expense of cultivation is small, the farm being kept seeded down with artificial grasses

requiring only the seeding implements, a machine for cutting and raking the hay, and a few of the smaller implements for the cultivation of roots to be consumed by the milch cows. The best breed of cattle to keep depends on circumstances. The Ayrshire is generally considered as giving the greatest flow of milk on a given amount of food. The milk of the Jersey, however, is the richest, so if butter and cheese making is the object they are the most profitable. The milking and management of cows is one of the most important considerations in dairying, and the utmost cleanliness should be preserved in everything about the stables and the milk house. ONTARIO.

Wooden Shoes for Horses.

Mr. M. F. Hughes, in charge of the large "Chandler Farm," near Lansing, Mich., sends sketches of the wooden shoes which he has used on his horses for the past year. Much of the farm land is low and of a miry nature, and after heavy rains it is impossible to use horses for mowing and drawing the hay unless shod in the way here given. The horses are shod in the usual manner, and under each shoe a wooden plate is placed, made of elm plank, one and one-half inch thick, twelve inches long, and ten inches wide. The corks of the shoes, which should be pretty long, fit into small mortises in the wooden shoe. "The shoe is held in place by a band passing over the front of the foot, below the quick of the hoof, and fastened to the shoe by a small bolt on each side of the foot, about two inches back of the center of the shoe. The band is made of light band-iron, one inch wide." With these "snow-shoes" the horses are able to go upon the miry or soft land with safety. The upper surface of the wooden shoe is shown in figure 1, and a side view, with the horse's foot in place is seen in figure 2.

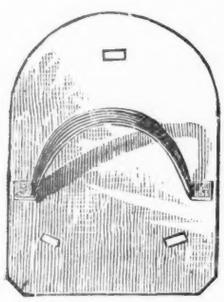


Fig. 1.—WOODEN SHOE.

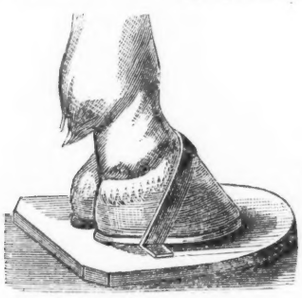


Fig. 2.—THE SHOE IN POSITION.

Young Chickens and Insects.

The practice of excluding chickens from the garden, especially in mid-summer, is bad both for the chickens and for the vegetables. The young chicks will not thrive in confinement, as in freedom, and the growing plants are in a good measure protected from insects by the chickens. We have never succeeded better with young broods than by putting them, with the mother, in the vegetable garden. The mother is kept confined in a coop, and the chickens have free access to her through the slats. She follows her instincts in scratching over the ground under the coop for worms and grubs, and after a few days the coop is pushed along to new soil. The chickens are regularly fed with scalded meal, or boiled screenings; they supply themselves with animal food from the garden. The chickens are too small to do any harm to plants that are well started, and yet they pick up an immense number of insects. The more highly a garden is manured, the more rapidly do insects multiply, and the greater is the need of birds and fowls to keep them in check. The chickens can go beneath cucumbers, squashes, beans, tomatoes, etc., and pick the eggs and worms from the underside of the leaves, where they are generally found. They eagerly chase every moth and bug that flies, and if one alights within striking distance, it is sure to be devoured. When the chickens are large enough to do injury to the plants, they are easily removed to other quarters.

Hints and Helps for Farmers.

A YOKE FOR A SUCKING COW.—"A Subscriber" sends a sketch of a device which he has found effectual in preventing a cow from sucking herself. It consists of two frames, one for each side of the neck, which resemble short ladders, and are made in much the same way. These frames are fastened on by means of a sheet of leather or heavy cloth over the top of the neck, and two straps which buckle underneath, as shown in figure 1. Brads, made of nails, are fastened in the rear ends of the horizontal pieces of the frames, which prick the cow when she bends her neck too far to one side.

Fig. 1.—A YOKE FOR A SUCKING COW.

A GOOD STABLE TIE.—Mr. "D.C.K.," Carbondale, Pa., sends a model of a convenient and cheap Cattle Tie, and writes as follows: "Our Tie is made of three-eighths inch rope, which is braided into an iron ring, sliding freely up and down a post set close to the manger or feed-box. There is a knot or frog on one end and a loop on the other. The ends pass on each side of the cow's neck, and the knot is slipped through the loop which may be made tighter by twisting. Similar fastenings made of chains with snap hooks may be bought at the hardware stores, but such an one as is here described will last a long time and answer every purpose of a good Cattle Tie, shown in figure 2."

Fig. 2. THE TIE.

A SPRING CATCH FOR GATE.—"G.S.T.," Dutchess Co., N. Y., makes use of old wire springs in the method shown in figure 3. The catch is fastened by a single bolt, and is movable. The spiral wire is so fastened to the catch and post so as to allow the catch to descend when the projecting bar of the gate is passing over it, and be again brought up when the notch in the catch is reached. The catch is prolonged on the opposite side into a handle, and by lifting on it the other end of the catch is lowered, and the gate is ready to open.

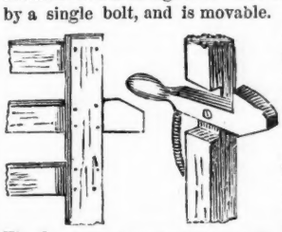


Fig. 3.—SPRING CATCH FOR GATE.

A BROOM-CORN SEEDER.—"S. E. V.," Bluffton, Ind., sends a sketch and description of an instrument for removing the seed from the brush of the broom-corn. It is made by taking a thin board about two feet long by ten inches wide, sawing into its end lengthwise at frequent intervals—the cuts being six inches in depth. The points of the strips are then sharpened, giving a saw-like edge, as shown in figure 4. The board thus made is fastened to a piece of timber so that it will lean away from the operator, and the instrument is complete. In using the Seeder, the brushes of broom-corn are struck upon the teeth and drawn towards the person at work.

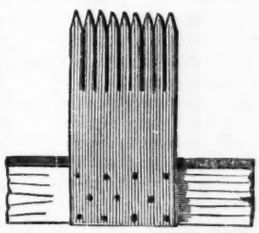


Fig. 4.—BROOM-CORN SEEDER.

A SIMPLE WAGON JACK.—"G. S.T.," Dutchess Co., N. Y., sends a sketch and description of "a light serviceable Jack, fig. 5 which suits perfectly." It is for use in oiling light buggies. It is a "stand," rather than a Jack, as the wheel is lifted by one hand while the instrument is adjusted with the other. It is made of pine, furnished with three rests of different hights, and provided with a bottom of sufficient size to be stable. Such a rest is simple, easy to work with light wagons, quickly made, and takes up but little space when not in use.

Fig. 5.—SIMPLE WAGON JACK.

GARDEN MATTOCK.—Desiring an implement for destroying weeds in my garden, I made a light mattock of an old ship carpenter's adze, by having the blacksmith weld a piece of cast steel to the poll, and sharpening it into a pick point. The blade was slightly straightened, being originally too much curved. The handle, made of tough ash, was first planed square, and of the proper taper, and then chamfered off, from near the head, until it was nearly round. The handle being forty-four inches long, makes this a desirable and easy tool for garden use. J. L. T.

Tansy Tea for Insects.—"C. C. K.," Naples, Ills., writes: "Our cucumber vines began dying very suddenly, soon after they came into bearing, and millions of fleas or Aphides were discovered on them. The adult insects were tiny black things, the young ranging from creamy white, through the shades of brown to black. One of my neighbors told me to sprinkle the plants with Tansy Tea, and it would save them. She had tried it on her vines and found it a success, while many of her neighbors had lost their vines. I had twenty-six hills to begin with, and about half of them had died, and were burned immediately, but one dose of strong tea (a three-gallon kettleful of Tansy sprouts covered with water and boiled), poured over the vines through the rose of a sprinkling-pot nearly cleared the vines. It was applied in the evening, and the next morning very few were discovered, and those few took their departure for parts unknown after another application. I could find none of the insects anywhere, dead or alive: not even on the ground under the vines."

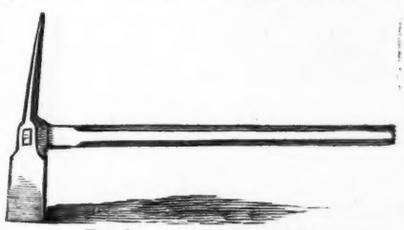
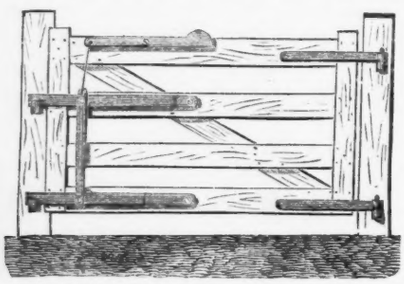


Fig. 6.—A GARDEN MATTOCK.

A Gate with Two Latches.

"J. B. C.," British Honduras, sends a sketch and description of a Double Latched Gate, and writes: "This gate is very convenient where hogs are to be provided for as well as cattle. Two latches, of the same size and length, and fastened on the gate the same distance from the end, are connected together by a strip of plank fastened with two small screws, so as to allow it to work easily; the catches are placed so that both latches are fastened exactly alike. If the latches are placed on the bars of the gate they are not so likely to be opened by animals. A very convenient lever for opening the gate while on horseback, is shown in the sketch; place a strip of plank level with the top bar of the gate, by



A DOUBLE LATCH GATE WITH A LIFTER.

means of a pin or large screw through the center. Connect one end with the latches by means of a wire, the other end having a raised part, so that by pressing down on this part of the strip, the latches will be brought up out of the catches."

Science Applied to Farming—LXII.

More About Roots of Plants.

The accompanying engravings illustrate the development and extent of the roots of the Sugar Beet. Like those of the potatoes and corn, in the late numbers of the *American Agriculturist*, they are copied in reduced size from photographs taken from nature by Dr. Thiel, in Germany. Figure 1 shows the very young plant, with only a few fine fibrous roots.—In figure 2, which is on a much more reduced scale, the fine roots have increased in number, and extended in all directions, while the main "tap-root," which makes the beet, has attained some size. In figure 3, which is still further reduced, the beet has grown much larger, and the roots have extended further and deeper. That less of the fine roots appear in this picture, is due in part to the difficulty of representing them in so small an engraving.—Figure 4 shows the matured plant, with the long root, which extended five feet into the earth, looped up and fastened, so that it might appear in the photograph. Here, as in figure 3, the finer roots do not appear.

Fig. 1.—A YOUNG BEET PLANT.

Extent and Depth of Roots.

I have often been interested in noting the ideas most people have as to how far and how deep the roots of plants extend. The majority guess roots of grass and clover penetrate between five and ten inches, and are surprised to find that they reach several feet. I have some roots of timothy, clover, and other plants, dug from a very heavy clay soil, a good quality of brick clay, so compact and hard that a sharp knife in cutting it leaves a surface as smooth and shiny as it would on the end of a pine board. I have traced the roots of the timothy to a depth of two feet and four inches and the clover three feet and two inches. A number of years ago a very intelligent German farmer, named Schubart, made some very interesting observations upon the roots of plants as they grow in the field. An excavation five or six feet deep or more, was dug in the soil so as to leave a vertical wall. Against this wall a jet of water was played by means of a garden sprinkler; the earth was washed away, and the roots of the plants growing therein laid bare. The roots thus exposed in a field of rye, in one of beans, and in a bed of garden peas presented the appearance of a mat or felt of white fibres, extending to a depth of about four feet.

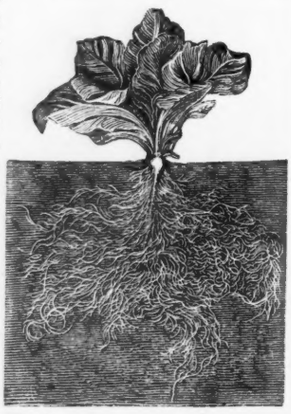


Fig. 2.—SHOWING FIBROUS ROOTS.

Roots of wheat sown September 26th, and uncovered the 26th of April, had penetrated three and a half feet, and six weeks later about four feet, below the surface. In one case, in a light subsoil, wheat roots were found as deep as seven feet. The roots of the wheat in April constituted 40 per cent of the whole plant. Hon. John Stanton Gould, I believe it is, says that he "has seen the roots of Indian corn, extending seven feet downward," and Prof. Johnson states that "the roots of maize, which in a rich and tenacious earth, extend but two or three feet, have been traced to a length of ten or even fifteen feet in a light, sandy soil." Roots of clover, when growing in a rich, mellow soil, extend far, both laterally and vertically. Prof. Stockbridge "washed out a root of common clover, one year old, growing in the alluvial soil near the Connecticut River, and found that it descended perpendicularly to the depth of eight feet." Lucern roots are stated to reach a depth of twenty and even thirty feet. Alderman Mechi, in England, tells of a neighbor who "dug a parsnip which measured thirteen feet six inches in length, but was unfortunately broken at that depth."

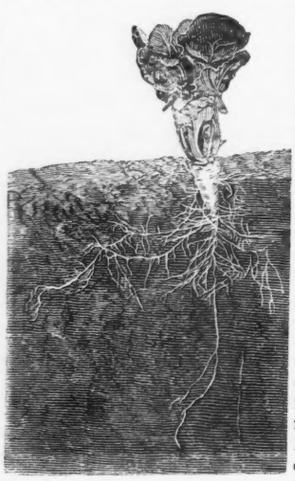


Fig. 3.—BEET ROOT, HALF GROWN.

Trees, of course, send their roots further and deeper. "A British officer in India reports that the roots of a leguminous tree is often dug in that country for economical purposes, and that he has seen an excavation sixty-nine feet deep made for such a root without reaching its lower extremity." Dr. H. A. Cutting, State Geologist of Vermont, writes me that he has examined the root of an elm, "dug out of the soil in Burlington, Vt., thirty-five feet below the surface." He also writes of seeing "elm roots taken from a wooden aqueduct in Randolph, Vt., 375 feet from the tree." The aggregate length of the roots of plants has been estimated by a number of observers. Thus, Dr. Hellriegel calculates the roots of a vigorous barley plant to have a total length of 150 feet, while the roots of another barley plant, in a coarse-grained compact soil, amounted to only 80 feet.

The roots are as important to the growth of plants, as the stems, leaves and fruit. But they are covered up in the ground, where we can not see them, nor do we appreciate their forms and uses until we study them carefully. And because we do not understand about them we neglect and injure them. Often the soil is wrongly tilled, or left untilled, the best growth of the roots is prevented, and their power to gather food for the plant diminished. Fertilizers are frequently so applied as to be accessible to but few roots, and therefore are but partially utilized. Thus through error born of ignorance we lose the produce we ought to have.

Nor is the advantage we may gain from such study as that of roots, limited to the pecuniary profit it brings. Knowledge is valuable for itself, and its highest usefulness rests largely in its effect upon its possessors. I often think that one of the greatest benefits that can accrue to the tiller of the soil is that which comes with a clearer appreciation of the wonderful processes by which nature furthers his work. We are far too prone to "grovel here below;" and need to be lifted up into a clearer, healthier, intellectual atmosphere. The man to whom a clod of earth is a clod of earth, and nothing more, is himself a narrow man; but as the soil becomes to him a laboratory, where a Divine Intelligence has set grand forces at work, and keeps them in operation in rhythm with all of Nature's harmonies, he will find his thought enlarged, his life inspired, and himself made thereby a stronger, better, and more useful man.

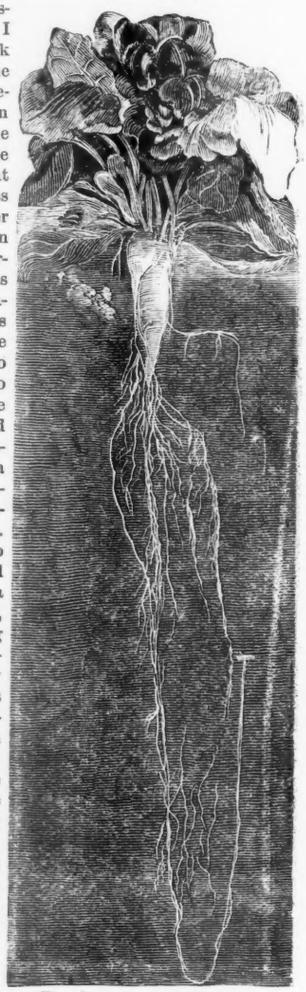


Fig. 4.—FULL-GROWN BEET.

But here I am at the end of my allotted space, and many interesting facts about roots, and their practical application in the tilling of the soil, the application of manures, and the rotation of crops, are untouched. More next time. W. O. ATWATER.

Wesleyan University, Middletown, Conn.

Throwing Sawdust into Rivers.—In answer to a question on this point, Professor Baird, Commissioner of Fish and Fisheries, writes us: "The practice is everywhere considered as extremely prejudicial to the fisheries of a stream, as the dust gets into the gills of the fish, and produces discomfort and disease; and settling to the bottom of the rivers, it covers the gravel and spawning grounds, preventing the eggs, especially those of the salmon family, from being properly treated."

The Sensitive Brier.

Southern readers of the *American Agriculturist* frequently send specimens of a plant with sensitive leaves, asking if it is the true *Sensitive* Plant, and if it is not, to give them the common as well as the botanical name. This is not the real Sensitive Plant, *Mimosa pudica*, but closely related to it, and is known as the Sensitive Brier, *Schrankia uncinata*.

THE SENSITIVE BRIER (*Schrankia uncinata*).

The true Sensitive Plant is an annual, about two feet high, with compound leaves, the leaflets of which close upon the slightest touch. This is now quite common in cultivation, being grown simply as a curiosity, and not for its flowers, which are not particularly attractive. The plant illustrated above is like the true Sensitive Plant, in having sensitive foliage. It is a perennial, found in sandy soil from Virginia southward; and is a long trailing vine, with prickly stems and very fine handsome foliage. The flowers come from the base of the leaves, and are in little balls about half an inch in diameter, of a pretty rose color, and appear abundantly throughout the summer and autumn months. For some time we had attempted to grow the plant in the garden, but every winter it was lost; in spring the root would be found completely rotted, and we began to think the climate was too severe to grow it successfully. Finally, a friend sent a root of it from Texas, and as a last resort, it was planted in an elevated portion of a little rockwork then just built. The plant grew finely the first season, and gave an abundance of flowers. The next winter proved a severe one, and in the spring we anxiously looked for the appearance of the Sensitive Brier. Nothing of it was seen, however, and it was supposed that the last attempt had resulted in a failure. But about the middle of May we one day saw a little shoot coming from the spot where the plant was put, and it soon started into a vigorous growth. For the last three years this plant has proved hardy, and though quite late in starting, has never failed to give an abundance of flowers. To those readers, who desire to grow this really beautiful trailer, it is suggested that they try the method of giving it a spot raised above the general level where water will not settle around the root and cause it to rot. A "rockery" or rockwork is one of the least expensive methods of successfully propagating many of our wild plants; in fact, it makes a wild garden, when filled with an assortment of plants from the woods, that is highly pleasing to every lover of native flowers. For the cultivation of the shy, early blooming, and delicate plants, there is nothing that quite equals a pile of rocks with "pockets" of earth here and there.

TWO BLAZING STARS (*Liatris Chapmani*, (*a*), and *L. punctata*, (*b*).

Blazing Stars—Liatris.

The increasing taste for the cultivation of Hardy Perennials has brought into notice many of our choicest of native flowers. There are no more beautiful wild flowers in any country than can be found in different portions of this broad land, and the *American Agriculturist* has been foremost in bringing into notice many of the most desirable kinds. That wild plants are extensively sought for in Europe, shows they have merit, which many of our own people fail to observe until they see them in the gardens, and learn that they are easily cultivated, and are as showy as many of the choicer and high-priced novelties. It is a lamentable fact that most of the native plants of the United States have been introduced through the medium of foreign seedsmen and florists. The genus *Liatris* contains several of the most beautiful of our wild flowers. There are about twenty species; one half of this number being natives of the Northern, and the remainder of the Southern States. We have had thirteen species under cultivation at different times, but none more showy than the two given in our engraving, *L. Chapmani*, (*a*), and *L. punctata*, (*b*). The former grows to a hight of two or three feet, forming a spike of beautiful pinkish-purple flowers two feet long. The flower stem is slender and graceful, and there is a neat and handsome look to the whole plant, which at once attracts the lover of beautiful flowers. A bed of this species commenced to bloom in September, and is still very fine at this date (Oct. 22). There is, however, one drawback to their cultivation, which may discourage some from attempting to grow it in the Northern States; it is not hardy enough to withstand our winters. The roots, like most species of *Liatris*, are tuberous, and before freezing weather sets in, they may be lifted and stored perfectly well in dry leaf-mould in the cellar. *L. Chapmani* is only found, as far as we are aware, in Florida. It was named in honor of Dr. A. W. Chapman, the zealous botanist of the Southern States, who has done so much to increase our knowledge of the plants of the State of Florida.

The other species, *L. punctata*, is found in Arkansas and Texas, and is so called from the punctate or dotted leaves. The root is tuberous, and considerably larger than in *L. Chapmani*, the leaves are long and narrow, very stiff and sharp pointed. The stems grow to a hight of two to three feet, and the flowering portion is often a foot and a half in length, densely covered with beautiful reddish-purple flowers. These flowers open about the middle of September, and last until the middle of November, the frost having no effect upon them. A row of these plants, nearly 200 feet long, is now in its prime, and it certainly is an interesting and beautiful sight to see these plants blooming while nearly all other flowers have entirely disappeared. This species, though a native of Texas, is entirely hardy in this vicinity, and withstands our severest winters without protection. Among other species of *Liatris*, which are worthy of cultivation, is *L. spicata* the earliest flowering species, blooming in July

with short, very dense spikes of purple flowers; this is followed soon after by *L. pycnostachya*, which grows in rich soil to a hight of five to six feet, with a flower-spike four to five feet long. Following this are *L. cylindracea*, *L. gramnifolia*, and *L. scarfosa*, the last, a quite common kind, being very different in the flower cluster, appearing in the form of buttons, whence it is often called Button-Snake-root; then last the dwarf and very showy *L. elegans*. This grows to a hight of about eighteen inches, the flowers first being of a dark purple, finally changing to white. The above species, with the one exception noted, are all hardy, and we trust our readers will transfer some of them to their gardens.

The Wax-work or Climbing Bitter-sweet.

The Wax-work (*Celastrus scandens*) is one of our most beautiful climbers, both for its fine foliage and the showy, orange-colored, round pods which open by three valves in autumn and expose the scarlet pulp which surrounds the contained seeds. These little pods, of the size of peas, which hang in graceful clusters of 10 to 25, are very lasting, and when gathered at the right time—just before they open—will retain their attractiveness throughout the winter. Their beauty in home decoration is now so well understood by the people in cities, that scarcely a pod is allowed to fully ripen, so rapidly are they gathered up by boys and others, who sell them in small bunches upon the streets. Those who live where the wax-work grows and have never gathered it, should secure some of the fruit to use in winter bouquets. The accompanying engraving shows the form of the cluster and the opened pod, but, of course, fails to give the rich and attractive coloring of the different parts. The leaves of the Climbing Bitter-sweet vary from egg-shaped, to elliptical, with deeply notched or serrate edges, green above and lighter below. The flowers are inconspicuous, yellowish-green, and somewhat fringed. As seen growing over stumps and rocks, and into the tops of tall trees, the Bitter-sweet is a shrub full of grace and beauty, and especially so in autumn, when the highly colored berries, in rich clusters, stand out in bright contrasts with the dark foliage of the cedar, and other trees, upon which this climber is often found.

THE WAX-WORK OR CLIMBING BITTER-SWEET (*Celastrus scandens*).

The Pear and Peach Blight.

BY PROF. T. J. BURRILL.

In very many examinations, during three years, of portions of pear trees suffering with the disease usually known as Fire Blight, I had noted the presence of the minute organisms which we commonly call Bacteria. But as these living things are so generally found in decomposing organic materials, and as they had never been considered active agents in producing disease in plants, whatever their relations may be to the contagious diseases of animals, little heed was given them in the search for a parasitic fungus to which the disease might be attributed. The failure to find such an agent, together with the gradually accumulating evidence of the aggressive character of Bacteria in animal diseases, finally called closer attention to them as the cause and not the consequence of this terrible scourge of the orchards. In June, 1880, careful investigations with this end in view were begun. The Bacteria were found to be the same, so far as a microscope with a power of one thousand diameters, and the best known definition could reveal, in every blighting portion of pear and apple trees examined. The change in the tissues was likewise found to be identical in all cases. The cell walls were left intact, and the protoplasmic material remained until the tissues began to shrivel from drying; while, on the contrary, the starch granules stored in the cells gradually disappeared. This was especially the case in the cells of the bark. My colleague, Professor Weber, determined for me that carbon dioxide, butyric acid and hydrogen were the products of the fermentation, which, as was readily proved, took place in the still living, but diseased bark. On July 1, 1880, experiments upon healthy trees were begun, by inoculating them with the Bacteria obtained from trees, in which the disease was in active progress. Most of the inoculations were made by inserting a sharp-pointed knife or needle smeared with the living Bacteria, into the bark of limbs upon healthy trees, and day by day careful records were kept of the results. In numerous instances the virus was applied to the exterior of the bark, or to uninjured leaves, without developing the disease in a single instance The following table shows the per cent of the successful inoculations, as became apparent up to and including August 14, 1880:

No. of Experiments.	*Kinds of Trees.*	*Virus from Pear.*	*Virus from Apple.*
36	Pear.	54%	72%
29	Apple.	30%	Not tried.
4	Quince.	100%	Not tried.

The virus from the diseased apple tree is considerably more effective than that from the pear, but this most probably is due to a combination of causes now unknown. It, however, pretty clearly indicates the identity of the so-called Fire Blight of the pear, and that very prevalent disease in the Western States known as Twig Blight of the apple. The last is a misnomer, because the disease affects the trunk as well as the young shoots, and not unfrequently causes the death of the whole tree. But it does not appear to run from the diseased green shoots down the older portions of the tree.

The progress of the disease from the point of inoculation *was always slow*, never giving external, visible signs of its presence under eight days, and rarely extending after this more than half an inch per day. In some cases the leaves remained green three weeks after the bark of the shoot bearing them was thoroughly diseased. In other cases the bark of larger limbs was quite dead, yet the leaves, borne some distance above, remained green all summer. This slow progress of the disease shows that the destroying agents are not carried in the circulation of water or sap in the tree, as, indeed, the teachings of vegetable physiology would also indicate. The Bacteria—shown in fig. 2, magnified 2,000 times—in some way not yet explained, pass from cell to cell. Figure 1, shows a thin section of the diseased bark from a pear tree, with the Bacteria in the cells, magnified 500 times.

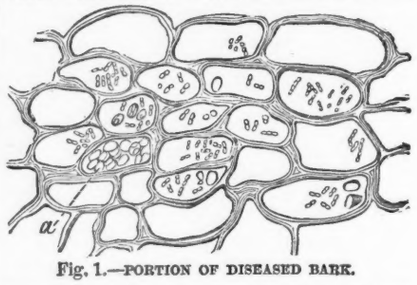


Fig. 1.—PORTION OF DISEASED BARK.

Having recently received portions of peach trees affected with "yellows" from Michigan, I find plain indications of the similarity of this disease to that of the pear. The Bacterium is evidently specifically different, but operates in the same way, causing fermentation of the starch. The Lombardy Poplar is also destroyed in a similar way, but in this case the Bacteria follow wounds of insects.

It is too early to propose, with much assurance, remedial measures, but the slow progression of the disease in the tissues gives reason for hope. Antiseptic washes may be sufficient to prevent or cure. Pruning or paring away the infected parts, taking due precautions not to spread the contagion by the process, certainly is effective, and by studying the earliest symptoms of the malady, the cutting may usually be very moderate.

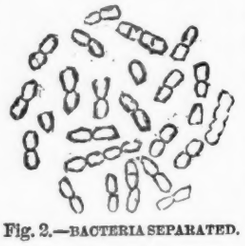


Fig. 2.—BACTERIA SEPARATED.

Cherries Once More.—During the past 20 years or so cherries have been very scarce, instead of being as they formerly were so abundant in their season that in many places they could be had for the picking. The present year has shown something like the former abundance, and those who had not cut down their trees in despair were rewarded for many years of failure. Whether the weather at blossoming time was especially favorable, whether the natural enemies of the curculio have essentially diminished its numbers, or both causes combined, the result has been most gratifying. In the city one could buy a basket at a reasonable rate, and the licensed venders offered fine fruit at 5 cts. for what they are pleased to call a pound. Our experience this year allows us to understand the great popularity of the "Early Richmond," with the western fruit growers. Our one tree, which in former years bore better than any other, was this year an example of fruitfulness, wonderful to behold; looking up into the tree one saw a canopy of fruit, the leaves being in the minority. This, by the way, is a most valuable fruit for cooking or canning, and when allowed to get dead ripe, is not to be despised to eat "out of

hand," as its acidity ripens into richness. If this fruitfulness is to continue, we shall be encouraged to plant cherry trees in abundance once more.

Notes from the Pines.

"The Pines," in view of which the present "Notes" are written, are not those of New Jersey, but of Old Jersey. The Island of Jersey is not quite as large as its newer name-sake—as it is but eleven miles long by half that in width. The Island is best known to Americans as the home of the Jersey Cattle (which many persist in mis-calling "Alderney,") and to Englishmen, in general, as the source of their early potatoes and some of their best fruits. As Paris is France, so is St. Heliers, Jersey, it being the port and business center, with streets crooked enough to gladden the heart of a Bostonian, and side-walks so narrow that the people walk in the road-way as much as on the walks along the sides. Soon after arriving, I visited

The Market of St. Heliers.

Were this the proper place in which to do so, I should try to describe this curious museum of things brought for sale by "The Toilers of the Sea."—I think that Cod was the only thing I recognized. There were eels as large as one's leg, crabs a foot across, and several other sorts of less dimensions; lobsters with spines on them, besides limpets, winkles, and other things that we do not have, and probably should not eat if we did.

The Vegetable and Fruit Market

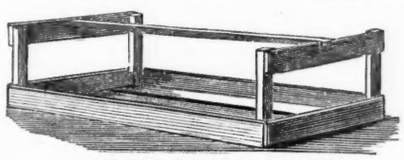
was very full. The vegetables were scarcely different from those in the London Market, but the fruits finer and much more abundant. Excellent apples, and pears, were in great plenty. The pear "Louise Bonne de Jersey," though not so well colored, is much better flavored than with us. Figs (fresh) very large and luscious, were cheap, to those who are fond of them; these ripen in the open air, and the trees are quite common all over the island; grapes, on the other hand, need glass, and there are some immense vineries, much of the fruit from which goes to London. I bought such Black Hamburgs for a shilling (24 cents) a pound, as we rarely see in our fruit stores for $1 per lb. Blackberries grow wild in plenty, and just now illustrate the old adage that "blackberries are always red when they are green."—The few ripe ones were very small, consisting of but few grains, badly shaped, and quite inferior in flavor to any of our wild kinds. Our delicious cultivated sorts do not appear to be known here or in England. It is doubtful if there is enough heat to bring them to their full perfection, but I think they should be tried.

Farming and Jersey Cattle.

The cattle, at least, do not come under the head of horticulture, and it is likely that something may be said at a future time on both these topics by my associate, as occasion offers. The farming is mostly, in fact, market gardening on a large scale. Any farmer, when asked what is his principal crop, replies "potatoes." For several years this has been the "money crop" of the Island, and it is cultivated by manuring quite as highly as do our market gardeners for their crops.

The Treatment of Seed Potatoes

is quite peculiar, and might perhaps be tried by some of our growers of early potatoes, especially in those Southern States where the crop is an important one. Already the "seed" is being prepared for next spring, and we see them everywhere in large quantities. Potatoes of medium size are selected and placed in boxes, usually made for the purpose, though other boxes are some times employed. We saw at several places in the town the boxes, or rather skeleton crates, exposed for sale, I think, at a penny each, but am not sure of the price. A rough sketch will allow the artist to represent it. It will be seen that it is a shallow box, 24 inches long, and 12 inches wide, with sides 2 inches high; it is of about ¼-inch stuff, the bottom being of three slats of similar material, with nearly ½-inch spaces between them. In each corner of this box is a post 7 inches high and ½-in. square; a strip connects the posts at the ends, and across the top runs a lengthwise strip one inch wide by ½ thick; this is let into the end pieces so that it is flush at the top. The potatoes are set "seed-end" up in these boxes as closely as they can be packed, taking care to put those of a size together. At first the boxes, when filled, are put in any convenient place in the open air, fully exposed to sun-light, in order that they may become thoroughly greened. As cooler weather comes on, they are taken into the house, and stacked up in some suitable place. The peculiar form of the boxes allows of putting one



A CRATE FOR SPROUTING POTATOES.

upon another—as many as may be desirable—and still have sufficient ventilation and exposure to light. By the time the weather will allow of their being planted, strong sprouts about two inches long will have grown. The planting is done by setting the potatoes upright in the furrow in the same position they had in the box; great care is exercised in handling while planting, in order not to break the sprouts. As the planting may be delayed until all danger of frost is over, the potato, when placed in the soil, is ready to go on and grow at once.

Much is Gained by this Method.

In planting in the ordinary way, the potato remains for a long time in the soil before the vegetative process begins, while by this method all the preparatory work is done in advance, and growth, having already begun, is at once continued. I hope that some of our growers will try this Jersey method and report the results. I am aware that cutting the potato some weeks in advance of planting, and placing them in a warm room to "sprout" is not new with us, but the method here described, beginning in the fall, and inducing a slow and sturdy growth of sprouts is somewhat different, and seems to me to have some advantage over that manner of preparing the "seed," and is worthy of a trial.

The Yield of Potatoes per Acre,

under the method practised in Jersey, is very difficult to ascertain, as their measure of land (*vergee*) and their measure for potatoes (*cabot*) are quite unlike ours, and besides, they estimate the yield per vergee in the £. s. d. it returns, rather than by the measure of potatoes it gives. A rough calculation shows that their potato crop returns from £40 to £90 per our acre, which is not far from $195 to $435 per acre; in some cases the returns have been as high as £120 per acre, or about $580. Though considerable sums are laid out for guano and other fertilizers, these are not all chargeable to the potato crop, as a second crop, usually turnips, is taken the same year, and in their rotation a crop of wheat is followed by clover, and all these are benefited by the heavy manuring given the potatoes.

Sea-Weed, or "Vraic,"

is largely used as a manure, both spread at once on the land, and put up in heaps to form compost. While the drift sea-weed can be collected at any time, the gathering of that which is attached to the rocks is regulated by law, or custom, but, I think, by law. I much regretted being a few weeks too late for the "Vraic" harvest, which is said to be a festival of peculiar interest upon the Island.

Orchards are Numerous,

but the trees are generally in bad condition, the moist atmosphere encourages the growth of those obscure vegetable forms to which our orchardists give the collective name of "Moss." Here the bark of the smallest twigs is covered with a greenish growth, which must essentially affect the health of the trees. Besides, the orchards are almost without exception in grass, and used as pastures for cows. When the cows are pastured they are rigged with a curious halter of rope and two pieces of curved wood: a part of this affair, which cannot well be described, goes over the head, and a rope from each side of it is tied around the forelegs of the animal, the object being to prevent browsing on the trees. While the cows, with this halter, can graze easily, they can not lift their heads.

Private Gardens

are often very fine, and there is scarcely a farm-house, however unpretending, but has a small piece of ground in front, tastefully planted and well kept. The English exclusiveness in such matters prevails here to a great extent. The fine places are generally surrounded by a wall, often 8 or 10 feet high, and only a glimpse of what is within is had through the open gate. Pastures, now the last days of September, are as fine as they are with us at any time. It will be supposed that the lawns are in correspondingly good condition. More perfect lawns cannot be imagined anywhere. A favorite tree for planting on lawns is the

Auraucaria Imbricata, or "Monkey Puzzler,"

a most formal tree, not hardy with us, but which grows here in great perfection. We plant Sweet Peas, and the July heats finish them. Here in Jersey, they are still in abundant bloom, often growing to a great hight. Perhaps these, more than anything else, most forcibly impressed upon me the great difference between Old and New Jersey. This difference is further illustrated by roses in full bloom. The Lemon Verbena (*Lippia citriodora*) here forms a tall, hardy bush. Camellias are hardy in the open air; I saw one that had not failed to bloom abundantly for 20 years. There are many other things which show how mild a climate this Island enjoys—among them the Laurestinus, which, with us, even a mild winter would kill, is seen here everywhere just coming into flower; in one case I saw two bushes 10 or 12 feet high, trained to form an arch over a gate-way. Here and there we are reminded of home by some American plants. In several gardens I have seen large clumps of our

Cardinal Flower,

Lobelia cardinalis, forming a mass of scarlet such as few plants can equal. It may be that the fact that our common things are thus appreciated abroad may induce some of our nurserymen to turn their attention to the growth of our native plants. One sees on every farm a larger or smaller patch of

The Jersey Cabbage.

Several years ago our seedsmen offered the seeds of this as "Jersey Cow-kale," and from this I inferred that it was used in Jersey as feed for the cows. The fact is that it is never fed to cows, but is grown especially as food for pigs. It is a Kale rather than a Cabbage, as it never heads. It naturally has a tall stalk, but as the lower leaves are picked off for the pigs, the stalk goes on increasing in length, and it is not unusual to see them 6 and 8 feet in hight. The stalks, when ripe and seasoned, make excellent walking-sticks, being both strong and light. In St. Heliers, there are several shops with signs showing that the owner is a

"Manufacturer of Cabbage Canes."

Mounted with a ferrule, and varnished, they are one of the specialties of the Island, and few strangers visit here without carrying off one or more "Jersey Cabbage Sticks." In some cases they are mounted with silver heads. Another reason for growing this Cabbage, is for its supply of leaves in which to pack butter. The neat pats of Jersey butter—and how delicious is Jersey butter at home!—are always sent to market upon a leaf of this gigantic Kale. It is with regret that we leave this charming Island. In conclusion, I would advise every one who visits Europe to make a visit to Jersey. I know of no other place, at home or abroad, that combines so many attractions for those who would see rural life in its highest development.

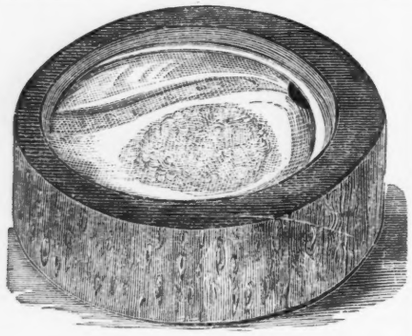
The Farmer's Garden.—The common idea among farmers, that manure and labor spent on the garden is nearly thrown away, is absurd. The cultivated field pays just as we invest labor and manure upon it. The garden, with more thorough cultivation, and a greater variety of crops, pays still better. It brings its offering to the table, in some shape, every day in the year. As the frost comes out of the ground in the early spring, it yields horse radish, artichokes, and parsnips. With the first genial days of April and May, it gives you pie-plant and asparagus, etc., etc.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

A Shell Catch-All.

Not long ago we saw a man on Broadway selling sea shells of various kinds, many of which were



A CONVENIENT CATCH-ALL.

arranged to serve some useful purpose, and at the same time possessed considerable beauty. One of these was a Catch-all, shown in the accompanying engraving, which has been made from a sample purchased for ten cents. The shell has a "setting," apparently in the end of a birch log, but it is not so. A piece of thin pine makes the bottom, which is of the size and general shape of the outline of the shell. Another thin piece of wood is then wound around this bottom and the edge of the shell, and fastened in place by glue, and covered with a strip of birch bark. The irregularities of the rim are filled in with some fine cement and given a coat of varnish, when the shell is "set," and the dish is complete. Such a mounted shell is quite handsome, and is so cheaply and easily made that it is within the reach of any one. It may be used for receiving burnt matches, and as the lining of the box is not combustible it is perfectly safe. Should there be a person in the house who smokes, he will find this Shell Catch-all convenient for receiving the ashes of his cigar, etc.

A Linen Wall-Pocket.

The convenient Wall-Pocket shown in the accompanying engraving is made of pasteboard, well-starched gray linen, a braid of any desired color,

Fig. 1.—A LINEN WALL-POCKET.

and embroidery work to suit the taste. The pattern is made in this wise: Make a square on a large piece of paper, so that one half of it will be the size desired for the upper part of the back of the holder or pocket. Draw diagonal lines from opposite corners, prolonging the perpendicular one half its length beyond the lower corner; connect this end with the ends of the other diagonal, and the outline of the pattern, as shown in figure 2, is complete. Cut the pasteboard after this pattern, and cover with the linen and braid, and stitch as one may desire; in fact, the limit to this decorative needle-work depends upon the taste, patience, and ingenuity of the designer. The cover should be so made that it can be removed from the pasteboard when it requires to be washed. The front part is made of the linen folded as in making a newspaper fan, through the upper part of the folds of which a cord is passed, and fastened to the pasteboard back at the sides. The bottom and sides should be firmly fastened to the back, and the wall-pocket is ready to be hung up by a ribbon fastened with a bow, as shown in figure 1. With these general directions, any one may make a wall-pocket that will be both ornamental and useful.

Fig. 2.

Home Topics.

BY FAITH ROCHESTER.

Hard Water and Soft Water in Cooking.

I have been reading the testimony of Alexis Soyer, the celebrated *chef de cuisine*, concerning the effects of hard and soft water upon food cooked with either. He gives the preference in all respects to soft water, unless in the one matter of cooking fresh meat with a view to making it as white as possible. He says that hard water seems to contract the pores, and solidify the gluten, so that he believed it to be impossible to extract the true flavor of meat with hard water. In boiling salt meat, soft water extracts more salt than hard water, and makes the meat more tender. Soft water evaporates one-third more rapidly in boiling, and cooks every thing in less time. He said that hard water shrivels greens and peas, and affects leaves more than roots. Potatoes boiled in hard water are harder and whiter than those boiled in soft water, and more time is required for the process. In cooking dry vegetables, he says, we must allow one-fourth more time for hard water. He had no doubt that soft water makes the best bread. He said that bread made with the same flour and the same yeast, and by the same bakers, is much inferior made with hard water than when soft water is employed. He made many experiments with tea, and decided that soft water draws out the flavor of the tea more fully and more rapidly than hard, so that for a "good cup" one must take more tea when using hard water than when using soft.

Washing Done Out of the House.

I am obliged to hire my washing done now, and am glad to have it taken out of the house, and returned to me, unironed. My washing is so large that a woman washing in the house, calls it a day's work, and charges accordingly. She may do some cleaning up, but taking the spatters on the wall, and the muss she makes while washing, and the extra labor of boarding and waiting upon her, into account, I think the work she does beyond the actual washing is not more than the trouble she makes me. My floor, being painted, I do not wish her to scrub it, and am able to wash it myself. It seems good to have the work all done out of my sight, the clothes not only hung out to dry, but safely basketed, whatever the weather. I pay no more money in the latter case than in the former, and in both cases furnish soap and starch.

Starching Made Easy.

My washerwoman objects to making two kinds of starch, and prefers to starch all of the clothes with fine laundry starch. Finding that she used half a package of "silver gloss" starch in the first washing, where she only had two shirts and two skirts with a few collars, but three dark calico dresses, and several large aprons and baby dresses and aprons, I proposed to her to make only flour starch and use that for the calicoes, etc., and I would starch the white clothes. She is unwilling to do so, because it takes so much *time* to make flour starch, or to rub out the lumps of flour to perfect smoothness. My sympathies are with her, and I yield the point, mentally, resolving to buy starch by the large, or wooden, box, and to provide large dark gingham aprons for the children, and to give up calico dresses until spring, so that the number of pieces will be diminished. I never feel that I can stop to make flour starch when I do my own large washings, and unless I can get the starch made by another person, I make enough fine starch for all the pieces that need stiffening, or omit althogether to starch some of the oldest every day clothes. To be sure the laundry starch costs a trifle more, but dear me! *Time* is money, and health too, and good temper and home happiness besides.

I think it the best way to stir the starch, sufficiently moistened, into the boiling water, instead of the more common way of pouring boiling water into the moistened starch "stirring briskly to prevent burning." I now make both flour starch and laundry starch in this same way. There is less liability of burning and more certainty of having the whole equally and well boiled. To the fine starch, when boiled, I now add a little starch gelatine, as it makes the starch less liable to stick, and easier to take a gloss in ironing. There are other preparations equally good I presume. But the latest and simplest thing I have heard of, in the way of starch, is *skimmed milk!* I am assured by a friend that she has often tried it, when she had only a few calico pieces in her washing. Dip the article into sweet well-skimmed milk, and it will dry as stiff (a little stiffer I should think) as common flour starch would make it. If there is cream in the milk it will grease it, of course.

Baby's Diapers.

It has been my custom to make outside diapers of large squares of unbleached cloth, fold double squares of old cotton inside those. This puts the thickness where it needs to be, and relieves the hips of too warm a burden. To-day I saw, in a friend's house, large half squares of cotton flannel for the outside use with long "towels" of the same material to fold inside. If I had another supply to make for a child large enough to run alone, I should make such half squares of cotton flannel if for winter, and of strong cotton cloth for summer. Then I would lay four small plaits, two on each side, a few inches of the hypotenuse of the triangle, or about four inches apart. I would stitch these down an inch, folded straight toward the right angle of the triangle (you understand this geometry, I trust), and so make a kind of band to the diaper, over the hips and behind. I fancy this would make the garment stay on better, without too great tightness, and that it would be more comfortable for the child. It is somewhat like the diaper drawers, but keeps its necessary character by fastening snugly with the safety pin or pins.

Under Suits for the Smallest Toddlers.

For children who still wear diapers, I know of nothing better, except perhaps the nice (and expensive) long-sleeved, long-bodied, high-necked knit shirt, than those long-sleeved rather loose, soft flannel waists, reaching over the bowels to the diaper. These button behind and have several buttons around the bottoms, to which may be buttoned open underdrawers or warm flannel panties. I used to make little breeches running up to a point at the top, out of the way of the diaper, and fastened to the skirt waist on each side, by one button. That is a good way, but now it seems to me, that those I must make immediately, will be wide enough at their very tops to button clear around the waist, meeting in the front and back, but still separate, so that one can be removed if necessary, without disturbing the other. I have a mind to make these inner leggings of old, white, ribbed merino stockings, or the better part of merino underwear, snug enough at the bottom to go inside the stockings, reaching to the ankle-bone, and held in place by a strap under the foot. The baby will not be too warm in winter weather with these and my old-fashioned colored flannel knee breeches too. The

latter come only over the knees, fulling a little at the bottom. In speaking of old merino stockings and underwear, I most certainly do *not* mean that which is fulled up, "thick as a board." There is no necessity for reducing soft flannel to this condition, and as few people know how to avoid it, I may tell them once more in a later paper.

Animals in Needle-Work.

The accompanying engravings illustrate how some of our domestic animals may be brought out with the needle and thread upon articles

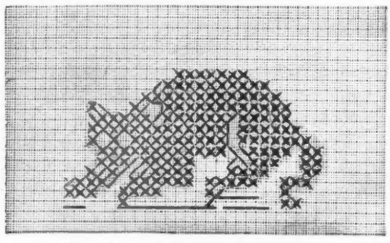


Fig. 1.—A CAT FOR A PATTERN.

of clothing, beddings, mats, etc. The sizes of the squares and that of the thread will vary according to the nature of the work, but the character of the stitches and the relation of the parts will remain the same for each particular animal. A cat or "rooster" on a tidy will not be as large, of course, as upon a floor mat or blanket. The patterns here presented are of but two of the many familiar animals that may be thus developed with the needle

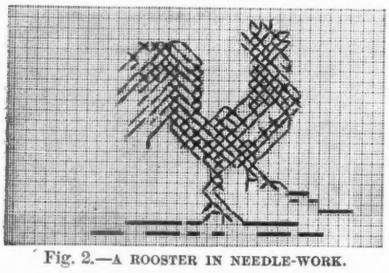


Fig. 2.—A ROOSTER IN NEEDLE-WORK.

and thread. Others will suggest themselves, and give an opportunity for the exercise of a considerable ingenuity on the part of the designer.

Notes and Queries.

TREATMENT OF COLDS AND CROUP.—We believe in "every one to his trade," and in all cases of severe illness or accident call in the skill of one who makes a business of studying the human system and its disorders. Yet many, especially in frontier settlements, find it impracticable, if not impossible, to always obtain reliable medical advice. We offer a few hints, that may be serviceable in ordinary, slight troubles—*Colds*, taken in hand promptly, are easily remedied. If they are allowed to cling to one for a few days, they usually "run their course" of a couple of weeks if not much longer. For a slight cold accompanied with sore throat, a simple remedy, often effective, is a teaspoonful or more of powdered Chlorate of Potassa, in a tumble of water—all that will dissolve. A teaspoonful of the solution is to be gargled in the throat and swallowed—repeating it every hour or so. A sudden, severe cold is most often broken by a gentle physic of Calcined Magnesia or Castor Oil, with warm foot bath, and avoiding any chill or draft of air for a day or two. For filling up of the lungs and much gathering or coughing we use a simple cough syrup, made by mixing equal quantities of Syrup of Ipecac, Paregoric, and Castor Oil or Sweet Oil; shake well, and take from half to a full teaspoonful, according to age, three or more times a day as needed. A warm sweat is good, *if* great care be taken to have no chilly feeling for a few hours after. If one does not cool off *very gradually*, more cold will be taken. *Croup* is, in some families, much dreaded. Its guttural cough is unmistakable after having once heard it. When first noticed we administer Syrup of Ipecac—10 drops to an infant, up to 20 drops to a large child—every hour or so until vomiting is produced. Then use the above cough syrup three times a day or more if needed. If more than a slight attack the Syrup of Ipecac is accompanied with foot baths as warm as can be borne, with a tablespoonful of good Mustard stirred into each gallon of water. In addition, the chest and neck are well bathed with Camphorated Oil or Volatile Liniment, and covered with flannel lined with thick cotton batting. It is well where croup is feared, to keep ready for use a flannel cut to fit the chest and neck, with tying strings on the neck corners, and with thick cotton batting stitched on to the under side. These remedies have proved effective in most cases of ordinary croup. If at all severe and not yielding immediately to the above simple home treatment, a physician is called in.

CREOSOTE FOR BRONCHITIS AND CATARRH.—When going from Switzerland to Italy *via* Mont Cenis, some years ago, the writer contracted a sudden severe cold, which, in the chill air of Turin, soon brought on a severe attack of Bronchitis. We hastened over to the genial air of Genoa, but it afforded little relief, and the advice of Dr. Paccioci, Professor in the noted Italian Medical College there, was called in. He prescribed a very simple remedy, which was at once effective, as it has been with many others to whom we have since recommended it. Put into a pint or larger bottle about three gills of water, and add two drops of good Wood Creosote. Shake very thoroughly, take a mouthful, gargling it awhile in the throat, and swallow it. Repeat this frequently, so as to use up the mixture in the first 24 hours, always shaking well before taking. After the first day, use *three* drops of Creosote and the same amount of water during 24 hours, so long as it is needed.—The same mixture has often proved very useful in *Catarrh*. In this case a handful or two of the well-shaken Creosote and water is snuffed up through the nostrils until it reaches the throat and is spit out. A tablespoonful or more is also gargled in the throat and swallowed. As Catarrh is an inflammation of the nasal passages, accompanied with a mucus deposit, the creosote, which is largely carbolic acid, would seem to be useful here just as dilute carbolic acid is effective in cleansing any putrid sores. Catarrh is the result of weakness, and is promoted by a cold. A toning up of the system and any simple remedy like the above is effective, unless the Catarrh is severe and of so long continuance as to have permanently disorganized the nasal cavities. It is folly to spend money for the much vaunted and much advertised catarrh remedies, which are usually the sheerest medical quackery.

PLANTS IN POTS.—As the cold weather comes on, and the choicest plants are being taken in, let it be remembered that you are limiting the "feeding ground" of the roots, and therefore the potting earth should be rich. Newly-potted plants require much water, especially if they are taken into a room where the temperature is moderately high. Besides food and drink, plants require sunlight and air. With proper care—and it is not great when done at the right time—a fine collection of plants can be kept through the winter and be a source of delight, with their fragrant flowers, in contrast with the apparently lifeless vegetation out-of-doors.

A "HORSE SHOE" PICTURE FRAME.—The horse shoe with its "Good Luck" is now a familiar sight in many articles of household ornament. The picture frame, shown in the accompanying engraving, is sketched from one we saw at a recent fair. It was made from a thin strip of holly with a scroll saw. The frame may be made of any desired size—the one in question being for an ordinary photograph. A mantle ornament of this kind, with variations in detail of cutting to suit the taste, can be made by any one with a scroll saw and a little skill.

HORSE SHOE PICTURE FRAME.

A Handy Folding Table.

Mr. James H. Ten Eyck, Auburn, N. Y., sends a model of a Folding Table, from which the accompanying engravings have been made. Concerning the table, Mr. Ten Eyck writes: "It may be made of any desired size, but for the purposes for which it is most generally used, namely, for ladies' work,

Fig. 1.—SHOWING UNDERSIDE OF TABLE.

sewing, as a writing, or invalid table, a very convenient size for the top is two by three and a half feet, and two feet two inches high. Black walnut, ash, and chestnut, are the most suitable kinds of wood. The top should be about five-eighths inch thick, with bevel or rounded edges; the legs, one by one-and-three-fourths inches, rounded edges; the strips or wings at top of legs, one-half by three inches, and three feet two inches long. The round between the intersection of the

Fig. 2.—TABLE IN POSITION FOR USE.

legs is about an inch in diameter. The wings should be hinged to the top, two and one-half inches from the outside edges, and let into the edges of the legs—flush. The spread of the legs on the floor should be about twenty-two inches for a table two feet wide. Iron or leather washers may be placed between the legs where they cross, to prevent their touching in folding. In cutting the rod, or 'round,' see that it is long enough to crowd the legs apart so that they will stand a little bracing. This will stiffen the table and make it stand firmly on the floor. This point is quite important, and it does

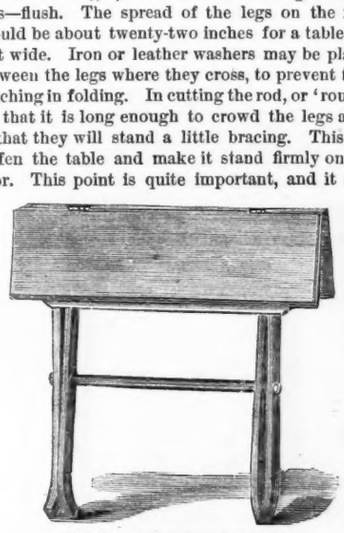


Fig. 3.—THE TABLE FOLDED.

not interfere with the folding in the least. To fold the table, simply lift it by the ends. To carry, or move it without folding, lift it by the sides. When folded, it is of a convenient hight to carry, and occupies only four or five inches against the side of the room, and is consequently easily set aside, when it is not in use, in an out-of-the-way place.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

It will be remembered that last month the relation between the sun, rainfall, and the flow of water in streams and rivers was pointed out. It was also said that there were two general kinds or classes of water wheels to make use of the power in moving water; the *vertical* wheels that turn "over and over," and the *horizontal* ones, that go "round and round." The three principal forms of *vertical* wheels, namely: the over-shot, under-shot, and breast wheels, were described and illustrated, and the *horizontal* ones were left until another time. The working of the horizontal, or Turbine wheels, is frequently explained to classes in Natural Philosophy with an apparatus like that shown in figure 1. This machine consists of a vertical tube, *C*, connecting with two horizontal arms which have their ends bent as shown in the one drawn separate at *A*, *B*. The upper part of the tube is enlarged so as to receive water from a can above it, provided with a faucet. The tube, with its arms, rests upon a pivot in the bottom of the dish, and the whole can move freely. It will be observed that the four ends of the arms are all bent in the same direction, though at first sight it may not seem so. As the water flows through these bent tubes, and out the opening at the ends, the whole apparatus on the pivot is made to revolve, and in a direction opposite to the water jets, as shown by the arrow in the illustration. But what makes the flowing of the water turn the machine? It is because the tubes are bent, and all bent in the same direction; if they were straight, or two bent one way and the other two bent equally in the opposite direction there would be no motion. In a bent tube there is a unequal pressure of the water upon the sides as it flows through, the liquid tending to straighten the tube, but in the case of a thick tube of glass, iron, etc., this cannot be done, and, if possible, the whole tube will move, as in the case of the "mill," shown in figure 1. This unequal pressure of water flowing through a curved tube may be clearly illustrated in the case of a rubber hose; if the water is let in quickly, the curved end of the tube will be thrown wildly about. Firemen have to be on their guard to have the water-hose as straight as possible when they are throwing a heavy stream with great force.

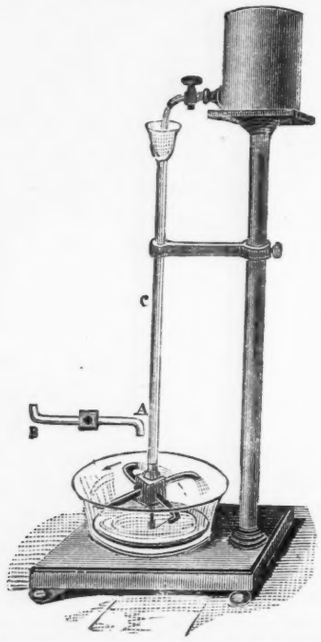


Fig. 1.—APPARATUS KNOWN AS "BARKER'S MILL."

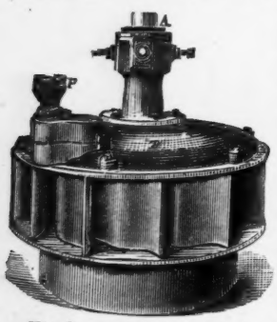


Fig. 2.—A TURBINE WHEEL.

A Turbine water wheel is shown in figure 2, but it is so compact that it will be hard for some to get a clear idea of its structure without another figure showing its arrangement inside, which is done in figure 3, giving a section of the wheel. The wheel is driven by water which comes from above, entering the wheel through the side openings or shutes (*D*, fig. 3), and strikes against the "buckets" marked *B*, the arrows showing the direction of the flowing water. The "dead water" escapes from the central part of the wheel, at the bottom of the flume. The motion of the wheel, which is under water, is given to the machinery of the mill or factory through a shaft marked *A*, in figures 2 and 3. The turbine wheels are not all made to work in exactly the same way as the one here shown, but they are all horizontal, and are the most effective water wheels yet known, that is, they give the most power to the machinery of the mill for the force that is in the water that flows through them.

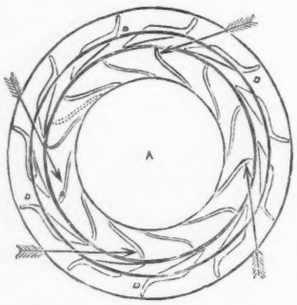


Fig. 3.—SECTION OF TURBINE WHEEL.

Solution: What Is It?

Here comes a hard question from a boy, that does not live a thousand miles from a large and rapidly growing city near the lower end of Lake Michigan. He wants us to tell him what we mean by SOLUTION. It is to be presumed that the young questioner has looked the word up in the dictionary—all should do this before writing to us—and found that it comes from the Latin *solutio*—to loosen. The word *Solution*, as it is now used, has a number of meanings—as the solution of a problem, etc. It is evidently the solution of a substance, as that of sugar or salt, that the young friend has in mind. If we take a glass of pure water, and stir into it a tablespoonful of white sugar, the sugar soon disappears, and to the eye is entirely lost. If we had weighed the water and the sugar before they had been put together, and the (here we have to use our word) Solution made by mixing them, no loss of weight would have been found. The sugar has *dissolved* in the water, and a Solution been formed which is sweet to the taste, and may be called a syrup. But why does the sugar dissolve in the water? There is a force called Cohesion, which you have had explained in a Doctor's Talk not many months ago, that acts between like particles of matter, and tends to hold them together. It was Cohesion that held the particles of sugar together to make the lump of sugar. There is another force called Adhesion, which acts between unlike particles, and tends to hold them together. Now, there is the adhesion between the particles of water and the particles of sugar, and that force is so strong that it overpowers the cohesive force of the particles of sugar for each other, and the particles of water for each other also, and the sugar and the water unite, it all becoming liquid; or, in other words, the sugar melts away in the water. This melting will go on as we add more sugar until a time comes when no more will dissolve, and then we say the solution is a saturated one—the water having received all the sugar it can hold. There are many substances that are not soluble in water, and therefore when they are put in water none of their substance disappears. If wood was soluble in water, a common boat would not last long, when pushed into the lake. The reader will think of iron, quartz, and many other solids that are not soluble in water, and also some liquids that do not dissolve in water, as quicksilver, etc.

Our Puzzle-Box.

CROSS-WORD.

My first is in brilliant but not in gay,
My next is in morning but not in day,
My third is in shutter but not in blind,
My fourth is in conscience but not in mind,
My fifth is in wisdom but not in sense,
My sixth is in paling but not in fence,
My seventh is in carpet but not in rug,
My eighth is in tumbler but not in mug,
My ninth is in barter but not in sell,
My tenth is in fountain but not in well,
My eleventh is in country but not in town,
My twelfth is in feather but not in down:
Dear reader prithee shun my whole,
It damages the very soul.

NUMERICAL ENIGMAS.

1. I am composed of 22 letters:

My 6, 7, 4, 19, 22, is part of a cask.
My 16, 1, 9, 8, 2, 7, is to become invisible.
My 12, 11, 10, 3, 13, 21, is part of a child's clothing in winter.
My 14, 15, 5, 20, 9, is a fabric.
My 18, 17, 16, 13, 19, is a number.
My whole is an excellent proverb.

2. I am composed of 19 letters:

My 14, 8, 7, 17, is an insect.
My 3, 17, 19, 2, 5, 11, is a hard, brittle metal.
My 1, 18, 12, 4, is steam.
My 9, 10, 12, 6, 16, comes from the clouds.
My 9, 13, 15, 7, is any particular place.
My whole is the title of a song.

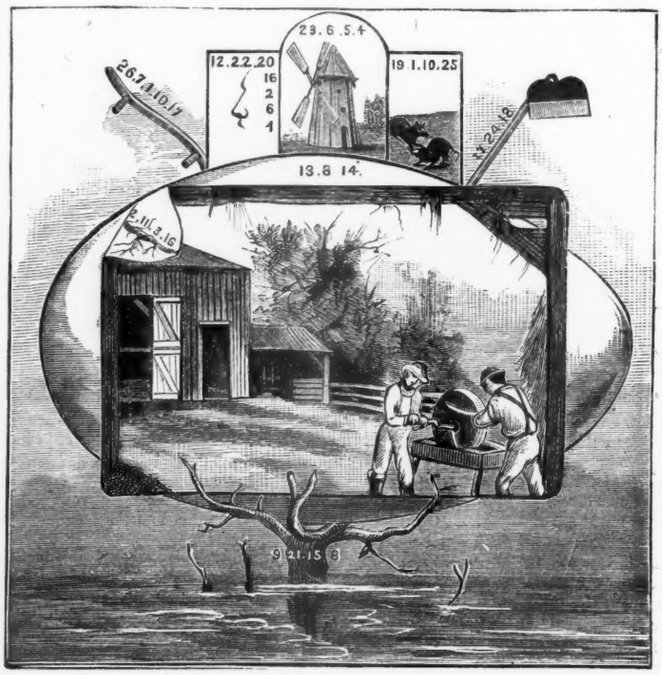
LOGOGRIPH.

Find a word of four letters, from which you may find words to fill the blanks in the following history:

We were sitting —— —— one day; there was plenty to ——, but I —— nothing, for I had a pain in my ——, and a —— in my eye. I could not help laughing, however, when I saw the cat run through the room at a furious —— after a ——.

PROVERB ENIGMA.

This puzzle represents a well known proverb, exemplified in the central picture. The several objects displayed around this may be described by words composed of those letters in the proverb which are designated by the numbers near each object.



DOUBLE ACROSTIC.

Two opposite emotions
Initials and final are,
The first is born in Heaven,
Last never enters there.

1. An instrument of torture.
2. Here music gives delight.
3. A sweet and fragrant flower.
4. Most welcome, day or night.

CHANGED HEADS.

First I am a period of time; change my head several times, and make (1) an unpleasant sensation, (2) beloved, (3) to raise, (4) dry, (5) a fruit, (6) an animal, (7) apparatus, (8) to lacerate, (9) to be told, (10), one of Shakspeare's characters, (11) to waste, and (12) immediate.

PUZZLE.

Take a third of twelve,
And a third of one,
And you'll only have two
When the whole is done.

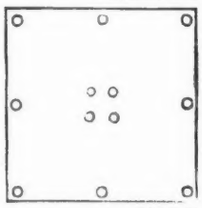
ANAGRAMS.

1. Fool's crime.
2. Brighten any.
3. O! I bit Missie's lip.
4. E'en singer.
5. Tea-urn fount.
6. But a last sin.
7. Ice funnels.
8. Dire ration.
9. For tin pieces.
10. Light may cool.

CONCEALED FISH.

1. Read me that psalm once more, Phebe.
2. Come to supper, Charlotte, the bell has rung.
3. I have just arranged the chairs.
4. Here comes Rudolph, in search of his father.
5. Charles had the measles.
6. The key is under the step; I keep the door locked.
7. Indeed we were not routed; we retired in good order.
8. Hush, Rufus! Hark! Here comes the circus.

A SQUARE AND CIRCLE PUZZLE.



Take a piece of pasteboard, and cut it into the shape shown in the accompanying diagram, and prick in it twelve circles in the positions indicated. The puzzle is to cut the cardboard into four pieces of equal size, each piece to be like all the others, and therefore to contain three of the circles, without cutting into any of them.

DEFINITION PUZZLE.

(In each sentence may be found the necessary letters to spell the word defined. *Example:* Organ of smell—*Nose.*)

1. To support.
2. The Superior of a monastery.
3. To call to witness, to beseech.
4. A solemn or blasphemous affirmation.
5. A pinch, a blast.
6. A notch, a score for keeping an account.

CONCEALED ARTICLES OF CLOTHING.

1. I love illustrious men.
2. What a darling love of a bonnet!
3. That is a beautiful dress.
4. The fabric appears to be Chinese.
5. Did you get it at the Oriental booth?
6. This cocoa tastes delicious.
7. Tommy wants his hoe, Father.
8. I wish those dogs would stop barking.
9. Robert loves those horrid things!

BLANK RHYMES.

(Fill the first blank with a certain word, and let all the words for the rest of the blanks rhyme with it; making sense of the whole twelve lines.)

I went to the city to buy some——,
'Twas winter, I had many a——;
One time I fell upon my——,
And on a stone I cut my——;
I gave my coat a cruel——;
With me I took my puppy "——,"
Who ran along with many a——.
And in my hand I held a——,
In summer, once, I took a——
To Coney Island, to get a——
In ocean-wave; there saw a——;
Of lemonade I took a——.

PI.

Uncotsire ear ton howittu herit uncotfeerit myone,
theiren era seticosie thouwit thire fretitumcoe felsinge.
Awl hutwoit jesticu si sa a nowdu wittohu a ceur.

ANSWERS TO PUZZLES IN THE OCTOBER NUMBER.

CONCEALED FABRICS.—1. Gingham. 2. Merino. 3. Cotton. 4. Linen. 5. Silk. 6. Satin. 7. Muslin. 8. Serge. 9. Calico.

NUMERICAL ENIGMA.—Mustard.

CROSS-WORD.—Be cheerful.

DEFINITION PUZZLES.—1. Rowel. 2. Vital. 3. Use. 4. Tussle. 5. Rowen. 6. Virulent. 7. Chapel.

SQUARE WORD.—

L O V E R
O B E S E
V E S T A
E S T O P
R E A P S

CHARADE.—Massacre.

WORD-MAKING.—1. Phial+C, transposed=Caliph. 2. Lyre-beryl. 3. Greed-ledger. 4. Servant-veterans.

DOUBLE ACROSTIC.—Cambodia, elephant.

C- hid -E
A-ctua -L
M- ous -E
B- um -P
O —— H
D- acc -A
I- ro -N
A-ttrac-T

PI.—Have courage enough to review your own conduct, to condemn it where you detect faults, to amend it to the best of your ability; to make good resolves for future guidance, and to keep them.

CONUNDRUM.—The letter C, because with it a *lad* might be *clad*.

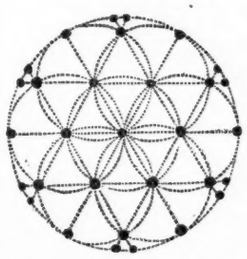
Illustrated Rebus No. 481.—The advice to be found in this Rebus is especially for the young.

The Coming Year.

There are a number of curious things with regard to the figures and their relations in the year 1881. From right to left and from left to right it reads the same. This will not happen again for a long time to come—just how long we will leave for the reader to determine. The first two figures of 1881, divided by 2, gives 9, and the last two figures, divided by 9, gives 9 also. If the figures of the year be divided by 9, the quotent will contain a 9, and if multiplied by 9, the product will contain two 9's. If the first two figures be added together, the product is 9, and if the last two figures be added, the sum is 9 also. If the first two figures be placed under the last two, and added, the sum will be 99, and 18 is $^2/_9$ of 81. By adding, dividing, and multiplying, nineteen 9's are produced, or one 9 for each year required to complete the 19th century. The year that is before us is certainly peculiar in a figurative sense. What else this coming year, that will soon be upon us, may bring can be better told upon the morning of Jan. 1, 1882, when it will give place to its successor.

A Strange Flower Bed.

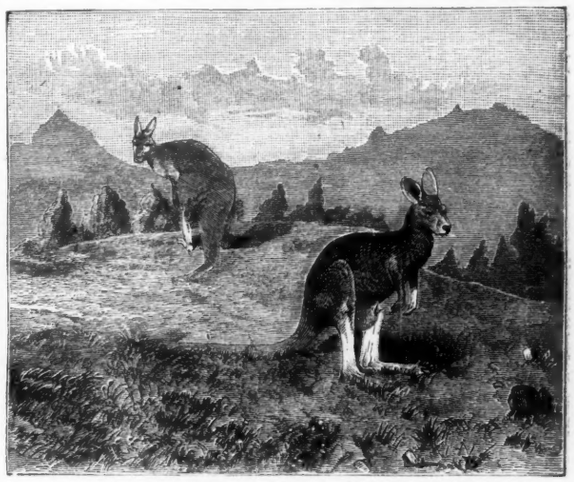
Last month I showed the method which a strange old man had of setting 27 trees so that they would be in ten rows of six in each row. In the accompanying diagram, there is shown the plan of a flower bed, in which the plants are so arranged that 18 varieties are in one circle; seven circles, with six varieties in each; six straight rows, with six kinds in a row, and three straight rows, with five plants in a row. All these plants: in large circle (18) plus, seven times six (42) plus, six times six (36) plus, three times five (15) gives a total of 111. Only 31 kinds of plants and only one of a kind are used. Small plants will be required in a few of the places in the outer row. The dotted lines show the various circles and straight lines that are produced by this method of planting a flower bed. Any boy could, with a little pains, plant the bed of 31 plants in this shape if he so disired. The circles could be made with a piece of twine and a stake, and the points where the lines cross would be the places in which to set the plants. U. H.



PLAN OF FLOWER BED.

The Kangaroo.

One of the strangest of animals in Australia—where everything is said to be peculiar in both animal and plant life—is the Kangaroo. There are a number of different kinds of Kangaroos, one of which is a tree climber, and jumps from bough to bough, catching and hanging by its long, strong tail, much as does our opossum, a cousin, or some other near relative of the Kangaroos. The general appearance of the Kangaroo is shown in the accompanying engraving. It will be seen that this animal has a small, mouse-like head, very short and ridiculously small fore legs, and hind parts of great size, ending in a tail of a weight and length entirely out of proportion to the fore part of the body. The Kangaroos range in size all the way from a hare up to the hight and weight of a large sized man. In some respects the Kangaroo resembles a toad, because "when it stands it sits, and when it runs it jumps." It is to be presumed that the first question a boy would ask is: What is the tail so big for? At first sight it might be supposed that this large extremity was for protection—a fighting member—a weapon of defense; but this, we are told, by those who have seen the Kangaroo in its home, is not so. Some have thought it was to aid in walking—a fifth leg—but this animal does not do much walking, and when it does, it does not walk on or with its tail. The tail is mostly used to break the fall as the Kangaroo strikes the ground after it has taken a leap, which is often twenty feet or more. The Kangaroo is a rather savage animal, and an old one will frequently kill the dogs that are used to hunt them—and when cornered have done severe injury to the hunters themselves. The Kangaroo clasps the dog or man by its short fore legs, and then scratches and tears its victim with the long, sharp claws of its hind legs. Sheep-raising is one of the leading industries of Australia, and the Kangaroos are troublesome to the farmers, as they destroy

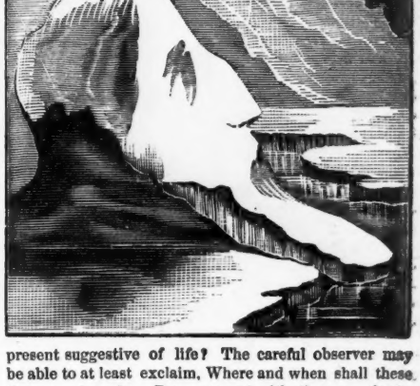


A PAIR OF KANGAROOS.—(*From a Photograph by Schreiber*).

large quantities of the valuable pasturage. Kangaroos go in flocks, somewhat as our sheep do, and are seldom found entirely alone. It is seldom that the flock is large, usually six to ten, with an old one as the leader. They are valued for both their skin and flesh, and are hunted and killed in large numbers by the natives of Australia. The hunter must be very cunning to be successful in capturing his subtle game. The hunters usually go in bands, and with their plot and plan well understood by all those engaged in the chase, cautiously come upon and surround a number of Kangaroos that may be feeding quietly upon a hillside or valley. The animals, quick to take any alarm, will then hop away at a rapid rate, except those that have fallen victims to the savage hunters.

Perhaps the most interesting thing about Kangaroos is the way which they care for their young. When the baby Kangaroo is born, it is very small, not much more than an inch in length, and entirely unable to run about or care for itself. The young animal is placed in a pouch on the under side of the mother, and in this "cradle" the little Kangaroo passes the early days of its life. When it gets larger and stronger it occasionally leaves its pouch, and hops about, nipping the green and tender herbage, but so soon as any danger is seen it scrambles back to its pocket of safety. Nearly eight months pass before the young Kangaroo leaves the pouch, then weighing about ten pounds, and from that time on seeks its own food and becomes its own protector.

A Puzzle Picture.—The ice is somewhat broken up; and in the back-ground a mountain of this cold solid describes its rough and ragged outline against the foreboding sky. But is this all? Does not the reader find more than a desolate polar scene? Though we may not recognize any of our friends, is there not something

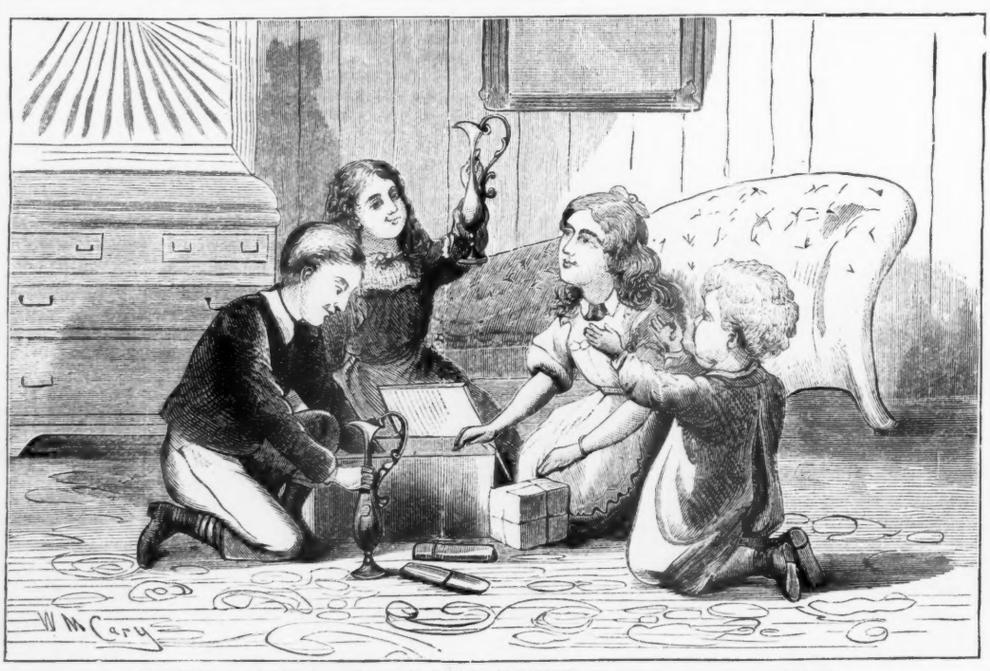


present suggestive of life? The careful observer may be able to at least exclaim, Where and when shall these three meet again. Do you meet with them, reader?

The End of the Year Soon at Hand. Christmas.

There is something sad in the thought that 1880—a year so full of hopes fulfilled and youthful joys realized—is soon to take its place among the eighteen hundred and seventy-nine of its fellows in the silent halls of history and memory. The months of winter, with the skating on the pond, and the coasting on the hillside, went all too quickly away, and the warm days of spring—lengthening, lazy days—came with the singing of happy nest-building birds, almost before we thought the songsters had reached their southern winter homes. With the heated days of May many a boy sought the shade of the leafy trees by the side of the pond or stream, and as he drew, with shouts of triumph, the shining, finny swimmers from the water, he thought, if he did not say: Would that springtime might always last, and fishing and fun be my lot forever! But the days of May soon lengthened into June, and the bright spring flowers gave place to fields of waving grain, and the planted crops were hoed—perhaps somewhat reluctantly—until the monotony of the corn-field was broken by the washing and shearing of the sheep. Then came July—hot July, with its memorable day, "The Fourth"; the day when, of all the year, the "Young America" that is in one, bursts forth with trumpet blast, and the booming of the sunrise gun. This hot month ranks far above the hotter one that followed slowly on her track—the sultry August—because it is the one in which our land was made free. All through the summer the gardens furnished their abundance of fine fruits—fruits that grew close upon the ground—fruits that hung in clusters on curved and briery shrubs—fruits that were knocked from the favorite orchard trees before they are half-way ripe—and fruits that grew, but few know where, save the foraging child who found them. But when the year began to ripen into the mellow autumn, the boys and girls as well, wished that the days would not shorten as they so evidently were doing. There were nuts to gather on the hillsides—the chestnuts, shagbarks, butternuts—all this preparation for winter takes time, and it needs to be done early, or the squirrels and other unfriendly animals will strip the trees. Fall is also the season of the fairs; and with the fruits, the rich tints of the autumnal forests, Thanksgiving Day, the cider casks bursting full of amber sweetness, the golden pumpkins, and the staring and startling lanterns which are made from them, all these, and a thousand other attractions made the dying of the year rather a happy "passing away" after all. The reality of the situation did not come upon the youthful mind until it awoke to the cold and chill of some dreary December morning, when all is dead without, and there is not any too much life within. It is then that the "Melancholy days have come, the saddest in the year." It is then that the white covering that nature has put on suggests the snowy locks of old age, and that a funeral must soon be held, and the aged year laid away in a silent grave, beneath the frozen clods and the still colder snow. But the picture of the end of the year is not so sad as this; it has a brighter and more cheerful ending in many a household: in fact, it is a happy, joyful gathering to see "the Old Year out and the New Year in." I think no one will dispute me when I say that into the last fortnight of the old year and running over into a few days of the new, there is crowded more sport, fun, real solid enjoyment for both young and old, than any other equal period of the year. This is the time of the Holidays, and includes that day of all days—Christmas; the anniversary of that bright dawn in the East when all creation rejoiced and "the morning stars sang together." While this day is "yet afar off," thousands and thousands of people, old and young, are laying their plans and making preparations for Christmas. I can not go into any details of what this one of the family, or that of some other family, is doing for Christmas, only it may be said that many hands are active over work that is hid from the public gaze. "It is more blessed to give than to receive;" but to surprise in the bestowing of gifts is better than all. It has grown to be a sort of second nature for young and old of all classes and conditions of life, to be for weeks before Christmas, so to speak, "half blind" to the movements in the family circle. The mother has her time by herself, the grandma is unusually busy and uncommonly quiet; and as for the children they are full of sly talk and fearful that the "cat will get out of the bag." It is a sort of relief to have Christmas day come after all this suspense. The artist has let us into the "secret chambers" of a single home, and it is the type of many—would it were of all homes in the land. The "old folks" are divided from the children—it may be by a single thin wall, and each group is busy arranging the presents for the other. There is the center-table spread with the toys and the things that make the little ones rejoice; the warm-hearted father, the careful, loving mother, and the deeply interested, good grandma. In the other room there is perhaps more wondering, as for example, how papa will like this! or what will mamma think of that! as the children discuss the merits of the things which their saved money has enabled them to gather together. Christmas is a more novel thing to them than to the older members of the family, and therefore has a freshness which gives vent to smothered laughter and subdued fun. I like to see this spirit of giving early developed; it unfolds the better nature of the children, and makes them have a generous feeling and regard for others. If Christmas had no loftier meaning, and led to no higher and nobler thoughts and actions, than that of pure and simple giving—giving for the good feeling that it brings to the one who receives, and the double blessing to the one that bestows—it has not become a holy Holiday in vain. I should like to be present when this family, now separated, shall be united, and there is no doubt but what the reunion will be a pleasant—a joyous one, and the old and young together will have a happy day. The three generations will have a common bond of sympathy, and all hearts will beat to the sweet music of love—a music that it is hoped will never cease to roll. May the good Father bless them all, and may the day be a merry, merry Christmas. That this may be the portion of every one of my young readers, is the wish of your UNCLE HAL.

THE OLDER MEMBERS OF THE FAMILY PREPARING FOR THE CHILDREN'S CHRISTMAS.



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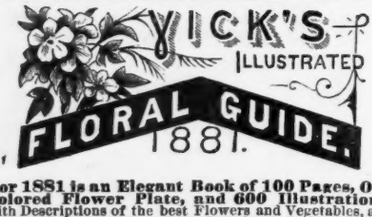

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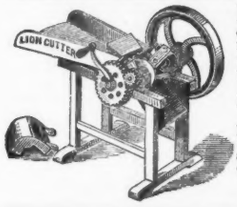

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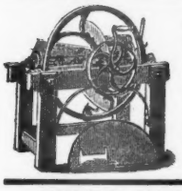

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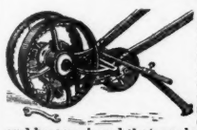

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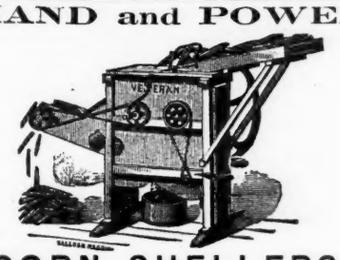

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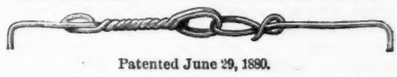

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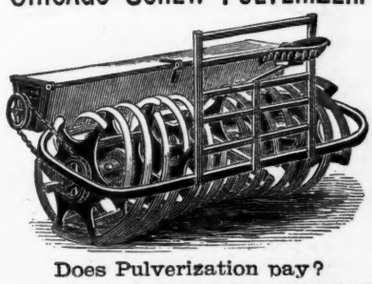

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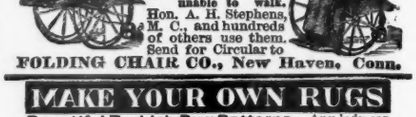

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Catalogue of Health Books free.

M. L. HOLBROOK,
13 & 15 Laight St., New York.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 499.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 39, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

The Care of Grindstones.—The exposure of the stone to the sun has a tendency to harden it. And if one part be left in the water habitually it will grow soft, and will wear away faster than the other. If the trough is put upon movable supports in the frame, it can be adjusted to the stone without much loss of time.

Mule Breeding.—"D. G." The value of mules depends very much upon their size. Large mares are most profitable as a rule, and the larger the jack the better. Of course mere size should not govern in selecting breeding animals of either sex. Large well-formed jacks sell at a high figure, and are usually imported from France, Spain, or Malta. "Riley on the Mule" is the best hand-book we know on the subject; it treats of buying and handling mules, and briefly of breeding.

Alders and Hardhacks.—"A Subscriber," Long Hill, Conn., asks for some chemical that will, by a simple application, kill shrubs which infest pastures. To kill most kinds of brush, cut close to the ground in spring, and as soon as the young shoots start overstock with sheep. Or after the grass is gnawed down pretty short by cows and horses, turn in so many sheep that they will need to eat the brush to live. There is no "chemical" that will kill the troublesome plants, and spare the grass. Salt may be used, but not to kill the plants directly; it is to be applied fine, and sprinkled on the leaves when wet with rain. Cattle soon find it, and eat the shoots down close.

Orchard Grass.—"A. C. D.," Frederick Co., Md. You can sow Orchard Grass by itself or with grain (not buckwheat), on sandy or loamy soil. It may be sowed late in autumn, but on stiff soils it would be likely to winter kill. You would do well to plow this winter if you can, and sow without a "foster crop" as early in the spring as you can. Sow 6 or 8 lbs. of Clover with it.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Nov. 10th*, 1880, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d's *this* m'th	521,000	7,836,000	6,119,000	415,000	987,000	1,481,000
27 d's *last* m'th	507,000	6,997,000	6,904,000	212,000	473,000	1,538,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d. t'sm'h	597,000	26,563,000*	12,609,000*	354,000	1,106,000	3,621,000*
27 d. t'sm'th	539,000	31,016,000*	14,945,000*	259,000	285,000	3,109,000*

* Including forward delivery.

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1880..	521,000	7,836,000	6,119,000	415,000	987,000	1,481,000
26 days 1879..	484,500	10,170,000	4,116,000	557,000	1,193,000	1,212,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1880..	597,000	26,563,000	12,609,000	354,000	1,106,000	3,621,000
26 days 1879..	473,000	26,839,000	6,347,000	395,000	673,000	1,796,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Nov. 8, '80..	3,775,143	2,919,519	21,826	46,024	928,079	117,111
Oct. 7, '80..	2,228,321	3,272,024	55,481	19,324	449,202	134,850
Aug. 10, '80..	3,046,667	1,784,441	46,004	25,283	78,910	202,553
Oct. 8, '79..	2,137,893	1,672,136	27,312	31,211	578,056	207,729
Nov. 10. '79..	7,455,616	2,610,961	283,505	333,684	720,711	180,840

4. *Exports from New York, Jan. 1 to Nov. 8.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'80..	3,209,000	56,736,000	45,141,000	1,859,000	259,000	421,000	381,000
'79..	3,928,516	55,135,601	29,248,000	3,637,488	147,867	511,000	303,128
'78..	2,144,798	47,458,833	24,019,000	3,730,574	1,518,417	3,503,000	858,122

CURRENT WHOLESALE PRICES.

	Oct. 9.		Nov. 10.	
FLOUR—Super State & Wes'n	$3 50 @ 4 10		$3 65 @ 4 35	
" Extra State	4 10 @ 4 50		4 50 @ 4 90	
" Extra Southern	5 60 @ 6 50		5 25 @ 7 00	
" Extra Genesee	4 40 @ 5 90		4 90 @ 6 25	
" Extra Western	4 00 @ 8 50		4 60 @ 8 50	
" Minnesota	4 00 @ 8 75		4 60 @ 8 50	
RYE FLOUR, Superfine	4 50 @ 5 00		5 60 @ 6 10	
CORN-MEAL	2 80 @ 3 90		2 65 @ 3 60	
CORN-FLOUR, ₩ bbl	3 00 @ 4 00		3 25 @ 4 00	
OAT-MEAL, ₩ bbl	4 75 @ 6 50		4 50 @ 6 25	
BUCKWHEAT FLOUR, ₩ 100 lbs	2 25 @ 2 50		2 00 @ 2 35	
WHEAT—All kinds of White	1 00 @ 1 17		1 10 @ 1 20	
" Red and Amber	1 00 @ 1 17		1 08 @ 1 25	
" Spring	1 00 @ 1 16¼		95 @ 1 20	
CORN—Yellow	52¾@ 67		59½@ 70	
" White	54 @ 55		59½@ 62½	
" Mixed	52¼@ 53¾		58 @ 60¾	
OATS	38 @ 45		37 @ 47¾	
RYE	97 @ 99		1 01 @ 1 04	
BARLEY	70 @ 95		73 @ 1 10	
HAY—Sale, ₩ 100 lbs	70 @ 1 10		85 @ 1 20	
STRAW, ₩ 100 lbs	55 @ 90		70 @ 1 05	
COTTON—Middlings, ₩ lb	11¾@ 11¾		11 @ 11¼	
HOPS—Crop of 1880, ₩ lb	20 @ 28		16 @ 23	
" old, ₩ lb	4 @ 25		4 @ 23	
FEATHERS—Live Geese, ₩ lb	47½@ 50		45 @ 50	
SEED—Clover, W. & St. ₩ lb	8¼@ 8¾		8 @ 8¾	
" Timothy, ₩ bushel	2 85 @ 2 50		2 60 @ 2 80	
" Flax, ₩ bushel	1 35 @ 1 40		1 35 @ 1 45	
TOBACCO, Kentucky, &c., ₩ lb	4 @ 15		4 @ 15	
" Seed Leaf, ₩ lb	5¼@ 50		5½@ 50	
WOOL—Domestic Fleece, ₩ lb	18 @ 48		18 @ 50	
" Domestic, pulled	18 @ 45		20 @ 52	
" Californ'a	15 @ 35		14 @ 33	
TALLOW, ₩ lb	6¾@ 6¼		6¾@ 6¼	
OIL-CAKE—₩ ton	30 00 @ —		32 00 @ —	
PORK—Mess, ₩ bbl	16 00 @ —		15 00 @ —	
" Extra Prime, ₩ bbl	12 00 @12 50		12 00 @13 00	
BEEF—Extra Mess	10 00 @10 50		9 75 @10 25	
LARD, in trcs. & bbls, ₩ 100 lb	8 45 @ 9 10		8 55 @ 8 90	
BUTTER—State, ₩ lb	21 @ 32		23 @ 32	
" Western, poor to f'cy, lb	16 @ 32		14 @ 31	
CHEESE	8¾@ 13¼		8½@ 13	
EGGS—Fresh, ₩ dozen	20 @ 23½		22 @ 26	
POULTRY—Fowls, ₩ lb	10 @ 15		8 @ 12½	
" Chickens, ₩ ₩	10 @ 16		7 @ 15	
" Roosters, ₩ ¼	4 @ 8		4 @ 8	
" Turkeys, ₩ lb	8 @ 11		10 @ 13	
" Geese, ₩ pair	1 00 @ 1 62½		1 00 @ 1 62½	
" " ₩ lb	— @ —		7 @ 13	
" Ducks, ₩ pair	40 @ 75		40 @ 75	
" " ₩ lb	11 @ 16		10 @ 15	
" Wild, ₩ pair	15 @ 60		15 @ 1 50	
PIGEONS, ₩ dozen	1 25 @ 2 50		75 @ 2 25	
SNIPE, ₩ dozen	35 @ 1 50		35 @ 1 50	
WOODCOCK, ₩ pair	50 @ 75		40 @ 60	
PLOVER, ₩ dozen	— @ 2 00		1 00 @ 1 25	
REED BIRDS, ₩ dozen	75 @ 1 25		— @ —	
GROUSE, ₩ pair	50 @ 75		70 @ 1 00	
QUAIL, per dozen	— @ —		1 75 @ 2 50	
PARTRIDGES, ₩ pair	50 @ 1 00		20 @ 1 00	
VENISON, ₩ lb	10 @ 17		8 @ 13	
HARES, per pair	— @ —		40 @ 50	
RABBITS, per pair	— @ —		25 @ 30	
APPLES, ₩ barrel	50 @ 1 50		50 @ 2 00	
PEARS, ₩ barrel	2 00 @ 6 00		3 00 @ 8 00	
QUINCES, ₩ bbl	2 50 @ 4 50		1 50 @ 3 00	
GRAPES, ₩ case	1 50 @ 2 75		1 75 @ 2 75	
" ₩ lb	2½@ 8		3 @ 5½	
POTATOES, ₩ bbl	1 12½@ 1 75		1 12½@ 1 87½	
" Sweet, ₩ bbl	1 25 @ 2 75		1 00 @ 2 50	
TOMATOES, ₩ box	20 @ 30		40 @ 60	
TURNIPS, ₩ bbl	50 @ 1 00		40 @ 62½	
BEANS, ₩ bushel	1 30 @ 1 75		1 40 @ 1 80	
EGG PLANTS, ₩ bbl	1 25 @ 2 00		3 00 @ 4 00	
PEAS—Canada, in bond, ₩ bu	— @ —		82 @ 83	
" new, green, ₩ bag	1 50 @ 2 50		1 80 @ 2 00	
CORN, green, ₩ 100	50 @ 75		75 @ 1 00	
STRING B'NS, ₩ bag	50 @ 75		— @ —	
CARROTS, ₩ bbl	1 25 @ 1 75		1 00 @ 1 25	
LIMA BEANS, shelled, ₩ bush	— @ —		4 50 @ 5 00	
BEETS, ₩ 100 bunches	1 00 @ 1 50		65 @ 75	
CABBAGES, new, ₩ 100	1 75 @ 6 00		1 00 @ 5 00	
ONIONS, ₩ bbl	2 50 @ 4 00		3 00 @ 5 00	
CRANBERRIES, ₩ bbl	— @ —		4 50 @ 6 00	
SQUASH, ₩ bbl	50 @ 75		40 @ 75	
OKRA, ₩ 100	— @ —		25 @ 50	
PUMPKINS, ₩ 100	2 00 @ 4 00		3 00 @ 6 00	
CAULIFLOWER, ₩ bbl	— @ —		1 00 @ 2 50	
CELERY, ₩ dozen	75 @ 1 00		75 @ 1 25	

Extensive dealings have been reported during the month in Stocks and Bonds, prices of which have advanced materially, despite the scarcity of Money..More or less serious interruption to business operations resulted from the political excitement previous to election. ....A fair movement has been reported in most kinds of general merchandise at, however, irregular prices, closing with more steadiness....The leading kinds of domestic produce have been remarkably brisk, mainly in the home trade connection, though in good part for export. Food supplies here and in Europe have shown a decidedly upward tendency. Speculation has shown remarkable vigor, having acquired practical control of the home markets, thus, in large measure, determining the course of values. Grain has been worked up rapidly in price, on extraordinary transactions, especially in No. 2 Red and No. 1 White Wheat, No. 2 Corn, the principal grades of Oats, prime Rye, and the favorite qualities of Barley. Export purchases have been checked, in part, by the rise in values, which has been most pronounced within the last week or two....Flour has been on the advance, in sympathy with Wheat, and has met with a much readier sale....Provisions have been also quite active, especially Western Steam Lard, which leaves off buoyantly, with a lively call noted for stock, particularly in the option line....Mess Pork, which ruled much higher early in the month under review, under speculative manipulations, broke sharply about the beginning of November, and closes about steady at the reduced figures. More demand has been noted for Beef and Beef Hams, at stronger rates. Butter and Cheese have been sought after to a moderate extent, and Eggs have been in better request....A good demand has been noted for Wool, which has been quoted dearer and firm at the improvement....Tobacco has been quoted steady, on a fair degree of activity....Naval Stores and Petroleum close weaker and less sought after....Hops fell in price early in the month, under free offerings, leading to more liberal operations for home use and shipment....A dull market has been reported for Seeds, with values about as previously quoted....Hay and Straw have been quoted higher, is in comparatively limited supply, and wanted. ....Transactions in Cotton have been on a moderate scale, and generally at easier rates, as influenced by the weakness in the foreign markets and the depression reported from the Southern ports of outlet....Ocean freights have been fairly active for Breadstuffs, and Provisions, and Cotton, but at variable figures, closing firmly, including Grain by steam to Liverpool, 15c. per bushel; London by steam, at 16c.; Glasgow, by steam, at 14c.; to Bristol, by steam, at 17c. per bushel; to Antwerp, by steam, at 14c. per bushel, and sail to Cork, for orders for vessels of average carrying capacity—say 3,000 to 4,000 qrs.—$1.32 @ $1.35 per qr. of 480 lbs....Apples, by steam to British ports, at 84c. @ $1.08, mostly at 96c. on continued heavy shipments....The visible supplies of Wheat—embracing the hoards at lake ports, in transit, and on the seaboard—at latest dates, embraced about 19,118,100 bushels; of Corn, 19,365,000 bushels; of Rye, 897,700 bushels; of Barley, 2,612,000 bushels, and of Oats, 5,054,000 bushels, against about Sept. 1, an aggregate of 14,716,000 bushels Wheat, 19,012,000 bushels Corn, 574,000 bushels Rye, 265,000 bushels Barley, and 1,626,000 bushels Oats.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Oct. 11	11,500	129	4,679	35,843	35,284
Oct. 18	15,982	151	8,783	42,988	36,657
Oct. 25	12,845	122	3,986	38,524	46,050
Nov. 1	13,066	231	3,684	38,355	41,483
Nov. 8	12,647	211	3,035	35,812	37,646
Total for 5 Weeks	65,990	844	19,167	191,522	200,120
do. for prev. A Week	57,228	444	19,614	168,740	110,523
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per week	13,198	169	3,833	38,304	40,124
do. do. *last Month*	14,306	111	4,903	42,185	27,631
do. do. *prev's Month*	12,820	57	4,979	34,443	26,910

Prices for beeves per lb. estimated dressed weight:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
Oct. 11	6½@11½c.	8¼@10 c.	9 c.
Oct. 18	6¾@11¾c.	8½@ 9¾c.	8¾c.
Oct. 25	6½@11¼c.	8¾@ 9¼c.	9 c.
Nov. 1	6½@11¾c.	8 @ 9¾c.	8¾c.
Nov. 8	6½@11¾c.	8 @ 9¼c.	8¾c.

Beeves.—A dull market has prevailed for most of the month. As this report closes, the weather is warm and the markets are filled with meat, some of which is spoiling on the butcher's hands. Texans sold for 6¼c.; Colorados, 7¾c.; poor to fair natives ranged from 7@8¼c.; extras at 11@11¼c. A fancy steer of 2,700 lbs. sold at 11¼c., to dress 59 lbs....**Milch Cows.**—There are more cows coming forward, and the demand is better supplied than for some time. Prices continue steady at $30@$55 per head for common to prime cows.....**Calves.**—Grassers were doing a little better under the lighter supplies, selling at 1¾@2¼c. per lb. live weight; Fed calves at 2¾@3c., and common to prime veals at 4@7¼c. ....**Sheep and Lambs.**—The market closed with prices strong for good stock. Lambs were also in good demand, and prices firm. Sheep sold from $3.62½ for poor Kentucky to $5.60 for choice Pennsylvania wethers. Lambs ranged from 5¼@6c. for common to prime.....**Swine.**—Arrivals very liberal, and the tone of the market dull. Ohio hogs are being held for 5c.

The Horse Market.—Receipts from all points are moderate. There is some demand for large draft horses, which sell for $250 to $350. Well-matched driving teams are wanted at $800 to $1,000. Several lots of stallions have been imported recently. Messrs. Powell Bros. received ten powerful Clydesdale stallions, ranging in weight from 1,800 to 2,000 lbs. These fine horses go to Crawford Co., Penn. W. H. Jordan, of Waverly, Iowa, received some fine prize Cleveland bays. We saw both of these lots of imported horses at Stoddart's stables.

Prices of Fertilizers.

Nitrate of Potash (95 per cent), per lb	8 @8¼c.
Sulphate of Potash (potash 41 per cent), per lb	3¾@4 c.
do. do. (potash 27½ per cent, per lb	1¼@1¾c.
German Potash Salts (potash 12 to 15 p. c.), p. ton	$14.00@16.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼c.
Nitrate of Soda, per lb	4 @4¼c.
Sulphate of Ammonia (25 per cent), per lb	4¾@4¾c.
Dried Blood (ammonia 13 per cent), per ton	$45.00@50.00
No. 1 Peruv. Guano, Lobos, ₩ ton	46.00
do. do. guaranteed, ₩ ton, cargo M	56.00
Soluble Pacific Guano, per ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (clay soils), per 1,000 lbs	25.50
do. do. do. (light soils), per 1,000 lbs	25.50
do. do. do. "A" Brand (wheat), ₩ 1,000 lbs	20.00
do. Tobacco do. do.	52.00
do. Fruit and Vine Manure, per ton	37.00
do. Pure Raw Bone, per ton	38.00
Homestead Superphosphate, per ton	40.00
do Tobacco Grower, per ton	60.00
Banner Raw Bone Flour, per ton	45.00
Stockbridge Rye Manure, per ton	45.00
do. Wheat Manure, per ton	45.00
do. Seeding Down Manure, per ton	40.00
Bowker's Wheat Phosphate, per ton	40.00
Walton, Wharn & Co.'s Raw Bone Phosphate, per ton	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

Lightning.—"G. B. S.," Boonville, Mo. It is no certain indication of mineral deposits to have the lightning strike and tear up the ground; in fact it is no *indication* at all. Metallic veins are good conductors of terrestrial electricity, so are veins of moisture in the ground. For this reason the lightning may be more likely to strike near moist ground, or near metallic veins, than elsewhere.

Sore Shoulder.—"J. S.," Warrenton, Va., has a horse which had a very sore shoulder, and he is now afraid to use a collar for fear the sore will break out again. Try a Dutch or breast collar; that will probably not bear on the same spot. If that, too, irritates the sore, give the animal a rest until it is well.

Whitman and Burrell's Silo.—The names of Whitman and Burrell are familiar to all our readers as extensive advertisers of dairy implements and appliances. Not only do they make and sell dairy utensils, but they use them on their dairy farm, near Little Falls, which they have recently equipped, mainly for experimental purposes. An important feature of this dairy establishment is a silo sufficiently large to test the preservation of corn-fodder as a part of dairy management. The silo, completed last summer, is 56 feet long, 16 feet wide, and 22 feet deep, built in the most thorough manner, and divided by a brick partition, crosswise, into two compartments. The corn from eight acres was cut and stored away in the early part of September, covered with tongued and grooved boards, over which planks are laid cross-wise and weighted with about 50 tons of stone on each silo. The cost of the fodder as stored was 80 cents the ton. Feeding will commence in December, and we hope the friend who forwarded the above facts, will report the opening of the silos and the condition of the fodder, and as to its feeding results.

Currants.—"J. M. D.," wishes to know if currants can be raised on a hill-side with a slope to the east; where the plants can be had, and what fertilizer can be used in the absence of wood ashes.—Any good soil that will bear sixty bushels of corn to the acre will be suitable for this crop. The slope, if not so steep as to wash badly, is not objectionable. We should prefer a clay loam well drained to gravel, but this fruit is not so particular about a soil as some others. Farm-yard manure will answer a good purpose. Almost any nursery or dealer in small fruits will furnish either cuttings or the plants at reasonable rates.

Danger in the "Silos."—We are impressed with the importance of warning people who have put their corn-fodder in tanks, especially in deep ones, of the dangerous carbonic acid gas—the "choke damp" of mines and wells. A farmer near Sing Sing, used an old ice-house for pitting his corn-fodder; on Saturday night, when they knocked off work, there were some seven or eight feet of fodder cut in half-inch bits, and well trodden down in the pit. On Monday morning it had settled considerably and one of the hands jumped in and was treading about on it to see if it had settled evenly, when he felt dizzy and faint; the thought of "choke damp" flashed through his mind, and he called out to have a ladder lowered to him. This was done just in time, and he half crawled and was half hauled out. His head was four or six feet above the worst of the "damp," for it is very heavy. Had he fallen he would have been drowned in the gas, as effectively as in water, without a struggle or a murmur. When going into a pit never fail to lower a lantern first, for half a minute, and if it burns brightly the air of the pit is fit to breathe.

The Poultry Shows.—The Exhibitions given in this list are devoted wholly, or in great measure to poultry. These shows come after the other fairs are past, and when farm work is not so pressing, are widely distributed through the U. S., and should be well attended by all who take an interest in fine well-bred poultry:

Rensselaer Co. Poultry Ass'n	East Albany, N. Y.	Dec. 8-13
Tolono Pet Stock Ass'n	Tolono, Ill.	Dec. 14-16
Terre Haute Pet Stock A s'n.	Terre Haute, Ind.	Dec. 14-21
New Je sey State Society	Newark, N. J.	Dec. 14-21
Pottstown Pigeon Club	Pottstown, Pa.	Dec. 15-17
Dist. of Columbia Ass'n	Washington, D. C.	Dec. 15-22
Eastern N. Y. Fanciers' Ass'n.	Troy, N. Y.	Dec. 22-28
White River Valley Ass'n	Anderson, Ind.	Dec. 23-25
Poultry & Pet Stock Ass'n	Germantown, Pa.	Jan. 3- 6
Logansport Poultry Ass'n	Logansport, Ind.	Dec. 28-J. 1
Wide Awake Poultry Club	St. Johnsbury, Vt.	Dec. 28-30
Windham Co.	Brattleboro, Vt	Jan. 4- 7
Southern Mass. Ass'n	New Bedford	Jan. 4- 7
Saginaw Valley Ass'n	East Saginaw, Mich.	Jan. 11-14
Champlain Valley Ass'n	Burlington, Vt.	Jan. 11-14
Central Mass. Ass'n.	Worcester, Mass.	Jan. 11-14
Springville Ass'n.	Springville, N. Y.	Jan. 12-14
Cleveland Poul'y & Pet Stock.	Cleveland, O.	Jan. 12-19
Western Penn. Society	Pittsburg, Pa.	Jan. 13-19
Western Poultry Club	St. Louis, Mo.	Jan 12-19
Lancaster Poultry Ass'n.	Lancaster, Pa.	Jan. 14-19
Mascoma Poultry Ass'n.	Mascoma, N. H.	Jan. 18-20
Vermont State Poultry Ass'n.	Rutland, Vt.	Jan. 18-21
Union Pet Stock Ass'n	New Berlin, N. Y.	Jan. 18-21
Northern Indiana Poul'y Ass'n.	Fort Wayne, Ind.	Jan. 18-22

Grasses for Names.—The number of specimens of grasses that are sent to us for determination, especially from the South and West, indicates a general desire to know more about our native grasses, and that attention is directed toward the improvement of the pastures. "M. M. M.," Manitoba. The grass is not a native, but is the Perennial Rye-grass, *Lolium perenne*, of Europe. It is regarded as a valuable pasture grass, but not so good for hay, as Timothy...The common "Crab-grass," *Panicum sanguinale*, has been several times sent as Bermuda Grass, and now the "Mexican Drop-seed," *Muhlenbergia Mexicana*, comes from "H. M. D., Martinsville Va., who asks if it is not Bermuda Grass. Although the Drop-seed has long underground running stems, the portion above ground is erect, while the Bermuda creeps along the surface. Besides, the flowers of the Bermuda are arranged upon short stems which are attached at the end of the upright stalk, and spread like the fingers of a hand, as shown on page 105, in May last ...D. Strang, Lincoln Co., Tenn., sends "Tall Red-top," *Tricuspis sesleroides*, a tall, coarse species, about which little is known as to its value. In the same parcel was the "Proliferous Panic-grass," *Panicum proliferum*, which also came from "M. H. C.," Clarksville, in the same State. This in moist soils grows 4 to 6 feet high, with broad leaves, large succulent stems, and bears copious panicles of seed. All that the writers upon grasses have recorded in relation to this species is that: "Cattle are very fond of it." It seems to be deserving more attention than it has yet received, and we hope that our Tennessee friends may make the trials they propose and report results.

Wild Hops in Manitoba.—A lady in Manitoba, "M. M. M.," wishing to have hops, gathered the seeds from a wild vine, and obtained one plant which bore remarkably large clusters, some of which she sends, and asks several questions. Seedling hops are not always like the parent; half-a-dozen or more varieties are in cultivation, differing in color of vine, size, and shape of cluster, productiveness, etc. In cultivation, the old stools are divided, or sets, which are shoots with a piece of root attached, are planted. Our correspondent says that only two of her seedlings bore, evidently not being aware that the plant has separated flowers—the staminate and pistillate being in different plants. In practice, about half a dozen staminate plants are set to the acre. Large hops are not of necessity the best, as their value depends upon the quantity of small resinous grains, called *Lupulin*, they contain; these are found at the base of the scales of the cluster near the seeds; and when the hop is rubbed between the fingers they adhere to them. The abundance of these, the character of the odor, and the care used in curing, as shown by the color of the hops, are all considered in judging of their quality and value.

American Apples Abroad.—The almost entire failure of the apple crop in Great Britain, and the great abundance in our own orchards, have led to the shipment of this fruit to an extent never before known. Formerly a few barrels of very choice apples were sent over, and these brought handsome profit to the shipper. This year the consignments have been so large, that some thousands of barrels were offered in London in a single day. There is some danger that the reputation of "American Apples" (for they are seldom sold under any other name than "American"), may suffer from the sending of fruit of indifferent quality. There is perhaps no apple that bears transportation better, or is a better keeper than the Campfield. It is a good-sized, showy red apple, but it s sweet. In England, sweet apples are unknown, and not appreciated; the selling of a lot of Campfields, a few years ago, as Baldwins, did much to bring that excellent fruit into disfavor. If in the wholesale shipments now going on, varieties are sent that show that "American" does always stand for a firm-fleshed, rich and high-flavored apple, it will have an unfavorable effect upon the trade in future years.

Practical Azalea Culture, by Robert J. Halliday, Florist, Baltimore Md. Sometime ago we noticed "Camellia Culture," and we now have a companion treatise on the Azalea, by the same author. Works upon a specialty are restricted in their usefulness to those who cultivate the plant upon which they treat, but to such they are of great value, especially when, as in the present case they are by one thoroughly competent to teach.

Stone Fences—Two Suggestions.—C. G. Tousey, of Dutchess Co., N. Y., sends to the *American Agriculturist* the accompanying sketch, and writes that he has tried the following plan with entire success, on both wet and dry soil: "After the wall is laid, three plow furrows are turned against each side; the first one foot away, and not to be disturbed. If stakes and rider are to be used, these are now driven. The earth of the other two furrows is used to make a stop bank, two feet high, against the wall, on each side, as in figure 1. This will keep both wall and stakes in place. If locust stakes are used, the fence will not need overhauling in a lifetime."—We suppose Mr. T. sows grass seed to form a sod upon the bank—*an important matter*, for all stone walls may be strengthened in the above method. Dry soil

Fig. 1.—END OF WALL.

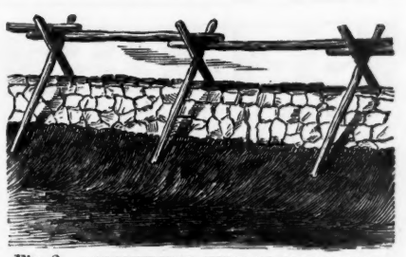

Fig. 2.—LONGITUDINAL VIEW OF STONE WALL.

expands very little in freezing, while a water-saturated soil, like water itself, swells and shrinks about one-eighth of its bulk in freezing and thawing, and this is what heaves fence posts, and throws down or disturbs stone fences or walls. A drain under a wall or on the side of it, that will keep the soil *dry*, will prevent disturbance by frost. The ditches above described are wasteful of land, though they secure immunity from frosts, and also save their depth in the hight of wall required. Figure 2 shows a longitudinal view of the wall.

Fisher's Grain Tables.—This is a little work which will tell at a glance the value of any number of bushels or of pounds of any kind of grain at a given price—in fact a "ready-reckoner," as applied to grain. Besides the grain tables there are others useful for farmers, and dealers in farm produce. Price by mail, 40 cts.

Sending us Papers.—It often happens that a letter comes to the Editors in which our attention is called to an article that appeared in a local or other paper, and informing us that the paper has been sent. Unless the paper is sent to one of the editors by name, or the article is conspicuously marked, there is little probability of our seeing it. The clerks who open the mail have many hundreds of papers to handle each day, and unless there is something to arrest their attention, such papers are likely to be passed over as regular exchanges. The better way is to cut out the article, mark the name of the paper and date upon it, and inclose it in the letter.

Lice on Canary Birds.—"H. W." An old German breeder of Canaries, whose management we used to watch with interest, when he suspected that a bird was troubled with parasites, would cover the cage over night with a piece of cotton flannel, the soft side down. In the morning the insects would be found gathered upon the flannel, which was scalded and ready to use again.

Orchard Grass Seed.—"O. J. M.," Jay Co., Ind., wishing to sow many acres to Orchard Grass, proposes to raise his own seed, and asks how to do it. It being important to avoid the seeds of weeds, a field that has been in some well cultivated crop should be selected, prepared as if for a crop of grain, and the grass seed sown in early spring. For hay, very thick seeding is required, but a bushel and a half of good seed will be sufficient for this purpose. The grass should not be cut until an examination of the heads shows that some of the seeds have begun to ripen. The grass may be cut and treated in the same manner as ordinary hay, but it is much better to cradle it, and bind it in sheaves like grain. When cured, it is thrashed with a flail and the seed cleaned.

Lip Salve.—"S. M. T." This as sold in the shops is an ointment of white wax, spermaceti and oil of almonds, colored red by Alkanet root, and perfumed with the oil of rose. It has no special curative qualities; mechanically it protects cracked lips from the air, and thus relieves pain. Pure mutton tallow, if not so pleasant as to its odor, will be equally effective.

Grass Seeds.—There is no seed in respect to the quality of which so little care is given as grass seed. It is not unusual for farmers to gather up the sweepings of the hay lofts and sow them. Such rubbish, of course, contains some grass seeds, but it is largely mixed with the seeds of weeds. It will pay every farmer who sows much grass seed to keep a portion of a meadow exclusively for seed bearing, and to carefully remove all weeds. To most persons grass is grass, without considering that grasses vary. Some years ago an English seedsman, finding some unusually large stools of Orchard-grass in a field, saved the seed and sowed them; he continued to breed, so to speak, from this stock, and now gets a fourth more for this seed than the common kind sells for.

Stereopticons and Magic Lanterns.—With the Magic Lantern a magnified picture is thrown upon a white wall or screen, where it can be seen by a large number. Stereopticon is a recent name for an improved Magic Lantern, and is a most excellent means of illustrating lectures or for exhibiting views of scenery, buildings, etc., merely as an entertainment. Having occasion to use a Stereopticon some months ago, we procured one of J. H. McAllister's, which was most satisfactory in its operation. The improved Magic Lantern for family amusement is offered in our Premium List, and the Stereopticon is described among the advertisements.

Bee Notes for December.

BY L. C. ROOT.

COMMENCING BEE-KEEPING.

Those interested in our pursuit should spend some portion of their leisure during the winter months in acquiring information in regard to the most approved methods in the apiary. It is desirable that those who wish to commence bee-keeping should become familiar, not only with the necessary, but the best fixtures, in order to begin intelligently, and to continue in the right direction. [The author modestly refrains from saying so, but the Editors have no hesitation in stating, that the best work in the language is Quinby's "New Bee-Keeping," revised and largely re-written by Mr. Root. This gives the most recent methods and appliances in bee-culture, and is a most complete guide to all the operations of the apiary. Post-paid from this office for $1.50.—EDS.]

CAUSES OF FAILURE.

Many beginners do not attach sufficient importance to this matter of preparation by reading, and often find it necessary to make many changes, thereby incurring much needless expense. Others become discouraged and drop the business in a year or two, when, if circumstances had been more favorable, they would have attained, with application, reasonable success. It is a mistake for beginners to hope to reach at once, results equal to those who have had years of experience. Those who indulge in this idea, will be sure to meet with disappointment. It is a common mistake with modern writers upon bee-keeping to offer too glowing inducements to the inexperienced.

In my opinion there are, at the present day, two distinct classes, taking extreme ground in relation to our interests, both of which I conceive to be in error. One class endeavors to induce all, without regard to fitness, to engage in bee-keeping, assuring them, by delusive statements, that it is the highway to prosperity. The other, on the other hand, says that the business should only be conducted by specialists, who devote themselves exclusively to it. I am often told that I am helping to instruct the public to produce such quantities of honey, that those of us, who make it a special business, cannot dispose of our own honey at figures that will make it remunerative. I admit that there may be some truth in this, if we are to be confrolled by selfish aims alone, but I cannot believe that this is the proper view to take of it.

The facts are these. All over this beautiful land, blossoms are secreting honey which is passing away and being wasted, at the very doors of those who might, with a proper understanding of the means, secure it as a wholesome article of food. Again there are those in nearly every community, who are keeping a few swarms

of bees in box hives, and in the old way securing little or no profit. This is the class I desire more particularly to influence. One of the earliest lessons I received was, that whatever it paid to do at all, it paid to do well. If it pays at all to keep bees in the manner alluded to, it certainly must pay much better to keep them after an improved method.

It is not true that all can keep bees successfully, but only such should undertake it as are by nature adapted to it, and will give it the same thorough continued application that is required to make any branch of business profitable. If one desires to understand how to commence rightly, and to become familiar with what is required to conduct bee-keeping satisfactorily, secure some practical work on the subject which does not represent either class of extremists just mentioned; begin moderately, and grow into the business as experience increases.

QUESTIONS AND ANSWERS.

UNITING BEES.—"I could get bees from those who brimstone them, by merely paying for extra trouble, but cannot ascertain whether it would be advisable to unite such bees with one's own, or how it should be done."—I would advise securing all such bees rather than see them destroyed. There is an advantage in having stocks very populous during winter. They may be safely united by smoking all thoroughly.

SIZE OF OPENING.—"Will you please state in the *American Agriculturist* the proper sized opening to a hive, to be used in connection with a swarm catcher, one that will allow free ingress and egress to the worker bees, and at the same time prevent the possible escape of a laying queen?"—An entrance $^5/_{32}$ of an inch will accomplish this, but it is seldom or never desirable, to use so small an entrance. The workers are too much hindered by it. Swarms may be prevented from leaving in the owner's absence, by clipping off one wing of the queen, and removing all queen cells once in eight days. It is far better to control the desire to swarm, which may usually be done by making moderate artificial increase.

COMB FOUNDATION.—"What kind of comb foundation shall we use in boxes?"—I find that the lightest grades of foundation now made, are not best for boxes. Medium weight is preferable.

Seeding to Grass with Buckwheat.—"S. A. S.," New Haven Co., Conn., writes: "In the November No. of the *American Agriculturist*, under 'Grass Seed Sowing,' it is stated that grass will not probably do well with buckwheat if this makes a good stand. I have tried it, and with good success; the land was old, run out meadow, that is, cold, heavy, wettish land, than could not be plowed until the last of May and first of June. The last of June I harrowed it thoroughly, and sowed very evenly one-half bushel of buckwheat to the acre, and four hundred pounds of ground bone to the acre, and harrowed, or rather double harrowed both in. With this was sowed one-fourth bushel of timothy seed to the acre, bushed in, and finished it by rolling. I can not imagine how, on that wet land I could have had a better stand of grass than I did, unless with turnips, as suggested, which method I think stands ahead of all others I ever tried. Heretofore I have sown the same lot to buckwheat, using one and one-fourth bushel of seed to the acre, and harvesting from 60 to 80 bushels from the lot. The reason I sowed the buckwheat so thin was simply to shade the grass from the burning July and August sun. I had no expectation of a crop of buckwheat to harvest. If I ever sow another lot of buckwheat, I shall not sow over one-half bushel to the acre. I would as soon seed to grass on land plowed only once from turf with buckwheat, as anything for June sowing. The land should be plowed one month before sowing, and thoroughly worked down with the harrow before seeding it. After the buckwheat comes off, top-dress the land with some fine manure or fertilizers."

Will Hungarian Grass Founder a Horse?—"O. A.," Califon, N. J. We have stated it very often, but it does not seem to be remembered, that Hungarian grass, if cut early, may be fed like other hay. If allowed to stand until the bristles around the seeds get hard, it will then be unsafe to feed it to horses. The value and the safety both depend upon the condition of the grass at the time of of cutting.

Annatto.—"G. T. T." asks how to spell the name, and what the article is that is used for coloring cheese and butter. The spelling above given is that usually followed in this country, though we sometimes see it with a single n or t. In England it is usually written Arnotto or Arnatto. The article itself is the pulp which surrounds the seeds of a South American shrub (*Bixa Orellana*). The seeds are thrown into water, and when fermentation takes place their thin covering of pulp separates; when the water is evaporated, the Annatto is obtained as a stiff reddish brownish red paste, which is packed in baskets for exportation. It is of a dark red color, and is used sometimes in domestic dyeing of cotton cloth. In South America the roots of the shrub are used in broth, and the paste itself is mixed with chocolate to both color and flavor it. Its chief use is to color butter and cheese, and it has for this use one merit—it is perfectly harmless. Though the quantity used by a single dairy is comparatively small, the aggregate consumed is very large. One of our advertisers, L. E. Ransom, is the largest importer of Annatto in New York, and there are several other importing houses.

Pearls in Common Oysters.—It is well known that the real pearl is caused by some foreign substance, such as a grain of sand, which has found its way within the shell of the pearl oyster. The animal being unable to get rid of this, covers it with the material with which the shell is lined. The interior of the Pearl Oyster and the fresh water Mussel (*Unio*), is bright and "pearly," and the pearls found in them have a similar appearance. The lining of the common oyster is dead white, like white chinaware. That often produces pearls, but they are always like the interior of the shell. A correspondent in Maryland sent, not long ago, several small pearls from the common oyster, with the request that we would sell them for him. Such pearls have no value whatever, as they are entirely without lustre. All that can be done with these oyster pearls is to keep them as curiosities.

Personal Questions.—"C. C. S.," Philadelphia, asks us to tell him in the December number where he "can get a situation on a farm." It is necessary to say from time to time that we do not answer such questions in the "Basket." Unless an answer to a question will be of interest to a number besides the one who asks, it is not given here. All purely personal questions, if it is possible to reply at all, are answered by mail.

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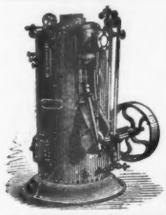

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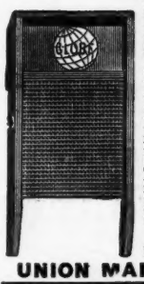

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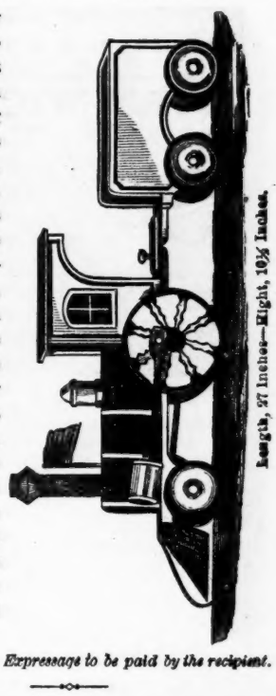

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....., *188* .

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